

DEPARTMENT OF DEFENSE



ANNUAL REPORT

FOR FISCAL YEAR

1962

Including the Reports of the

SECRETARY OF DEFENSE

SECRETARY OF THE ARMY

SECRETARY OF THE NAVY

SECRETARY OF THE AIR FORCE

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Letter of Transmittal

THE SECRETARY OF DEFENSE

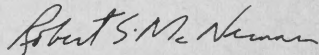
WASHINGTON

March 22, 1963

DEAR MR. PRESIDENT:

In compliance with Section 202(d) of the National Security Act of 1947, as amended, I submit the annual report of the Secretary of Defense for fiscal year 1962, together with the reports of the Secretaries of the Army, Navy, and Air Force for the same period.

Sincerely,

A handwritten signature in dark ink, reading "Robert S. McNamara". The signature is written in a cursive style with a prominent "R" and "M".

ROBERT S. McNAMARA

THE PRESIDENT
THE WHITE HOUSE

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Annual Report
of the
SECRETARY OF DEFENSE

July 1, 1961, to June 30, 1962

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I. A Flexible Deterrent

The most significant aspect of Defense policy in fiscal year 1962 was the emphasis given to the creation of a more flexible deterrent for the United States. A careful review of the dangers confronting our Nation indicated that our armed forces had to have an increased capability for countering all forms of aggression, ranging from thermonuclear war to subversion. In President Kennedy's words, "any potential aggressor contemplating an attack on any part of the Free World with any kind of weapon, conventional or nuclear, must know that our response will be suitable, selective, swift and effective."

Military policies and programs were adjusted in line with this objective during the past year. Our strategic nuclear forces were increased in size and effectiveness. They were balanced with stronger non-nuclear forces capable of meeting lesser threats to our national interests wherever they might occur. The forces required to deal with the special and growing challenge of subversion and guerrilla warfare were greatly expanded. Effective command and control systems were developed to assure that our military forces are always under control of the constituted authorities before, during, and after the commencement of hostilities.

These adjustments in the force structure of our military Services were carried out in accordance with the President's directive that military requirements should be considered without regard to arbitrary budget ceilings, but that major emphasis should be placed at the same time on operating the forces found to be essential at the lowest possible cost. While the review of requirements resulted in substantial increases in the Department's appropriation request for fiscal years 1962 and 1963, additional funds for strengthening our armed forces were made available through the many programs, newly established, for improving management and reducing costs.

The objective of the actions taken has been not merely to build an adequate strength level for our armed forces but, even more importantly, to develop a more balanced and flexible military establishment, capable of providing readily whatever degree and kind of support might be required by our national policies. The expansion of our strategic retaliatory forces has been accompanied by better

protection against surprise attack and improved command and control systems, thus permitting, if it should become advisable, a greater choice in retaliatory strategies. As for our general purpose forces, the emphasis has been placed on combat readiness, mobility, and flexibility, not merely on numerical strength, by balancing nuclear and non-nuclear capabilities, by providing increased airlift, by prepositioning supplies, by insuring adequate reserve stocks, and by expanding the training for counterinsurgency and civic actions. The adjustments proposed for the reserve forces complement these programs.

The planning for the force structure has been facilitated by the establishment of a new programing system that projects requirements over a 5-year period and presents them in the framework of missions to be accomplished instead of the administrative units responsible. Combined with improved cost estimates, the new system permits a more realistic evaluation of new projects and highlights deficiencies to be overcome by research or procurement as well as redundancies to be eliminated. Tying together plans, programs, and budget requests, it provides a meaningful frame of reference for the critical decisions that must be made by the executive branch and the Congress to assure the security of our country.

While strengthening its defenses, the United States explored every possible avenue to ease world tensions. Despite this effort, the Soviet Union reaffirmed its intention to abrogate unilaterally and at an early date all Western rights in Berlin and, on September 1, 1961, broke the nuclear test moratorium, thereby moving the arms race into a new phase. Steps were taken to counter both threats.

The serious Soviet challenge to Berlin during the summer of 1961 forced an acceleration in the implementation of the newly developed Defense programs. The rapid expansion of our non-nuclear forces became the most immediate requirement. The recruiting effort was stepped up. Monthly draft calls were more than doubled. Tours of duty of military personnel were extended. National Guardsmen and other reservists were called to active duty. Additional funds were applied to the rapid procurement of tactical arms and equipment. The actions taken in August and September 1961 placed beyond doubt the determination of the United States to defend Western rights and thus contributed immensely to the maintenance of peace.

The resumption of nuclear testing by the Soviet Union, in the midst of test-ban negotiations, caused a further deterioration of the international situation. Despite urgent proposals by the United States and the United Kingdom to halt these tests, the Soviet Union exploded more than 40 nuclear devices, including 1 with a force of 56 megatons and several others high above the earth—in one case at an altitude of

over 100 miles. Confronted with this challenge to the security of the free world, the President first authorized the resumption of underground nuclear testing on September 5, 1961, and then, on November 2, directed that preparations be made for conducting atmospheric tests in case that should become necessary. A careful analysis of the Soviet tests revealed substantial progress in Soviet nuclear technology and weapons design. This conclusion and the continued refusal of the Soviet Union to consider effective test-ban arrangements made it clear that the United States had no alternative but to resume atmospheric testing. This decision was announced by the President on March 2, 1962.

Responsibility for carrying out these tests, conducted jointly by the Atomic Energy Commission and the Department of Defense, was assigned to Joint Task Force 8, which operated from bases on Christmas and Johnston Islands in the Pacific. The series—known as Operation DOMINIC—started on April 25, 1962, and included underwater and high altitude detonations. Additional information was gained on existing and more advanced designs as well as on the reliability of communications and of offensive and defensive weapons under nuclear attack. The Department of Defense also participated in the tests conducted by the Atomic Energy Commission at the Nevada test site.

The course of world events during fiscal year 1962 again demonstrated that, until concrete results are achieved in our efforts to resolve outstanding international problems and to curb the arms race, the armed forces of the United States constitute the major deterrent to war. The programs initiated during the year insure that the effectiveness of this deterrent will be maintained.

II. Operational Forces

The magnitude of the actions taken to counter the threats to our security is reflected in the substantial increase in total obligational authority for fiscal year 1962. The funds requested for Defense programs were raised from a \$44.9 billion level, originally proposed in January 1961, to \$51.0 billion—an increase of \$6.1 billion or nearly 14 percent. Practically all operational forces were affected by this increase. To deter general nuclear war, our strategic retaliatory forces received an additional \$1.5 billion—for a total of \$9.1 billion. About \$3.0 billion was added to the program for our general purpose forces, mainly to improve the effectiveness of our armed forces in limited war and counterinsurgency, and funds for the closely related air and sealift activities were increased by \$0.3 billion—giving our general purpose forces a total of \$17.5 billion for fiscal year 1962 and our air and sealift forces \$1.2 billion. Other increases included \$100 million for reserve forces, \$400 million for research and development, \$400 million for general support, and \$300 million for civil defense activities. (See table 2. Table references may be found in appendix.)

With these funds the POLARIS program was greatly accelerated and increased in size; the MINUTEMAN program was given greater emphasis; combat-ready Army divisions were increased from 11 to 16 and provided with more tactical air support and a greater airlift capability; counterinsurgency activities were emphasized and the assigned personnel more than doubled; and, most importantly, the combat effectiveness of all of our non-nuclear forces was improved by increased procurement of modern weapons and equipment. In line with these expanded programs, military personnel strength rose from 2,484,000 on June 30, 1961, to 2,808,000 a year later. Some of this increase of 324,000 was attributable to the temporary callup of reservists in the late summer of 1961; current plans for fiscal year 1963 provide for an active duty strength of 2,703,000—or about 220,000 above the June 30, 1961, level.

The operational direction of the field forces continued to be exercised through the chain of command from the President and the Secretary of Defense through the Joint Chiefs of Staff to the unified and specified commands. To the eight commands of this type already

established—Alaska, Atlantic, Caribbean, Continental Air Defense, Europe, Mediterranean, Pacific, and Strategic Air—a ninth one was added on December 28, 1961, when the U.S. Strike Command (STRICOM) became operational.

STRICOM draws its forces for whatever assignment it receives from the Army's Strategic Army Corps (STRAC), the Air Force's Tactical Air Command (TAC), and the airlift units of the Military Air Transport Service (MATS) and the military Services. Its mission is to respond swiftly and with whatever force necessary to threats against the peace in any part of the world, reinforcing unified commands or, when directed, carrying out separate contingency operations. In the few months of STRICOM's existence, numerous training maneuvers have welded assigned units into an effective combat team, ready to defend national interests anywhere.

To assure that those responsible for the direction of our field forces have available the best possible intelligence on which to base their decisions, a unified Defense Intelligence Agency (DIA) was created on August 1, 1961, and started to operate on October 1. The mission of DIA is to bring about greater unity of effort in the military intelligence field at the Washington level, and the agency is charged, particularly, with producing the Defense contribution to national intelligence estimates, providing intelligence for top Defense personnel and the unified commanders, and determining Defense intelligence collection requirements. In rendering these common services, DIA reports to the Secretary of Defense through the Joint Chiefs of Staff. The functions assigned to DIA are being transferred gradually from the military departments so as not to interrupt current intelligence operations. Significant improvements, accompanied by more efficient management, have already been achieved in current intelligence and the "indications" field. Plans have been developed for establishing a unified Defense Intelligence School for postgraduate work and assigning other Defense-wide training responsibilities, such as those for foreign languages and air intelligence, to a single military department. In general, the new agency, when fully operational, will provide the unified direction of military intelligence activities previously lacking, eliminate wasteful duplication in facilities and tasks, and thus strengthen the Department's over-all capabilities in an area of critical importance to our national security.

Of similar importance is the requirement for an efficient and dependable communications network that will enable the President, the Secretary of Defense, the military departments, the Joint Chiefs of Staff, and the unified and specified commands to keep each other fully informed of decisions and developments in war as well as in peace.

Responsibility for providing this service has been assigned to the Defense Communications Agency (DCA), which—like DIA—reports to the Secretary of Defense through the Joint Chiefs of Staff. DCA started to assume its management of the separate long-haul telecommunications systems of the military departments on March 7, 1961, and by the end of fiscal year 1962 the flow of messages over long-haul channels had been brought under single control. One national and four area communications control centers were in operation, and plans were approved for the establishment of the six smaller regional centers that will complete the control network. The new control procedures will make it possible, for the first time, to exploit to the fullest the capacity of the Service-operated systems, which are now being interconnected by standard automatic switching equipment that permits the instantaneous rerouting of traffic from overloaded or broken circuits to open ones. Faster and surer delivery of messages has already been achieved, and the newly available control data provide a realistic basis for estimating future Defense communications requirements. A major role has also been assigned to DCA in the establishment of the new command and control system and in the development of a satellite-borne communications network.

Strategic Retaliatory Forces

In our over-all military program, the first requirement remains the maintenance of a realistic, effective deterrent against the initiation of a general war. The actions taken during the past year provide such a deterrent—for the present as well as the future.

While substantially strengthening our strategic retaliatory forces, we have also been developing an effective command and control system that will assure that these forces remain responsive at all times to constituted authority—from the President to the force commander. During peacetime, tight central control is needed to preclude the accidental or unauthorized launching of nuclear weapons. After an enemy attack, control is required to preserve flexibility in reacting to the situation as it may develop. To this end, we are providing alternate command posts on land, at sea, and in the air, with communication links to all elements of the strategic force. We are making certain that the command system itself is able to survive whatever the circumstances, thus making unnecessary any advance commitment regarding doctrine or targets and retaining freedom of choice among several operational plans. During the past year, existing facilities and procedures were substantially improved, and newly approved projects will still further increase the survivability and reliability of the control network. With such a system, we shall always be able to use our strategic forces in a controlled and deliberate way so as best

to pursue the interests of the United States, our allies, and the rest of the free world.

Current Status

In strategic missile power, the United States was at least twice as strong at the end of fiscal year 1962 as at the beginning. More than half of the 13 approved ATLAS squadrons were operational, and the remaining ones were scheduled to become combat ready at the end of calendar year 1962. Of the 12 approved TITAN squadrons, the first 2 were declared operational in April and May 1962, respectively, and all of the TITAN missiles should be in place by the end of calendar year 1963. Nine POLARIS submarines were ready for sea on June 30, 1962, and six of these were on station—as compared to three a year earlier. Included among the six deployed submarines was the first one equipped with the improved 1,500-nautical-mile POLARIS A-2 missile—an advanced version of the 1,200-nautical-mile POLARIS A-1 missile.

As for the strategic bombers, their survivability in case of enemy attack was enhanced by raising to 50 percent the number on 15-minute ground alert—the warning time that we can expect from the Ballistic Missile Early Warning System (BMEWS). Preparations were also made for keeping a substantial portion of this force on continued air alert, if so directed by the President. The buildup to 14 wings of B-52 long-range heavy bombers and 2 wings of B-58 supersonic medium bombers was completed; the planes still to be delivered will keep this force at operational strength in the years to come. The effectiveness of the supporting tanker fleet was greatly augmented as more KC-135 jets replaced KC-97 propeller-driven tankers. A larger inventory of HOUND DOG 500-mile air-to-surface missiles and QUAIL decoy missiles added to the capability of the B-52's for penetrating enemy defenses. The gradual phase-out of the B-47 jet medium bombers was temporarily deferred in view of the tense international situation.

As in the past, the strength of these strategic retaliatory forces continued to be supplemented by the nuclear capabilities of tactical aircraft and missiles, including naval systems, deployed around the world.

There can be no question that, today, these forces are fully capable of destroying the war potential of any aggressor, even after absorbing an initial nuclear surprise attack.

Planned Developments

As to the future, our programs call for the continued maintenance of a mixed force of manned aircraft and long-range ballistic missiles.

Since survivability in case of surprise attack and penetration capability are major factors in selecting the weapon systems for future deployment, the number and proportion of missiles in this mix is going to increase substantially in the years ahead.

In the long-range ballistic missile field, major emphasis is being placed on the solid-fueled MINUTEMAN and POLARIS. These weapon systems, in comparison to the liquid-fueled ATLAS and TITAN, are more economical and have a high capability of riding out an attack; the MINUTEMAN, deployed in hardened underground sites, retains its effectiveness by dispersal and number and POLARIS submarines are protected by mobility and concealment. The MINUTEMAN program was increased by 150 missiles in the fiscal year 1962 budget and by 200 missiles in the fiscal year 1963 budget—for a total of 800 deployed missiles—and, as insurance against possible future requirements, production capacity was doubled. Additional MINUTEMAN squadrons are planned for future budgets. The POLARIS programs for 1961 and 1962 were doubled, raising to 29 the number of fully funded submarines. The fiscal year 1963 budget brought this number to 35 and authorized the procurement of long-lead components for 6 more—for a total program of 41 submarines. Simultaneously, construction was accelerated so that the twelfth to twenty-ninth submarine will be delivered at a rate of 1 a month. Later POLARIS submarines will be equipped with POLARIS A-3 missiles having a range of 2,500 miles.

To assure the continued effectiveness of the strategic missile systems, research and development funds for penetration aids were significantly increased in both fiscal years. In addition, studies are being undertaken to explore the feasibility of more advanced missile systems.

A most intensive review by both the Congress and the Department was given during the past year to the B-70 program for a supersonic, long-range, high altitude aircraft. The Administration's budget proposals for fiscal year 1963 called for the construction of three prototype B-70's and the testing of associated subsystems—for a total program cost of \$1.3 billion since the work was begun in 1955. By the spring of 1962, when it became generally recognized that with the rapid development in ballistic missiles a B-70 bomber would be, at best, of only marginal value in the late 1960's, the concept of an RS-70 reconnaissance strike aircraft was advanced—to be used for damage assessment and reconnaissance as well as for attacking previously incompletely destroyed targets. The new concept found congressional support, and funds were approved to initiate the construction of 3 additional aircraft and to underwrite the development of a full-scale weapon system, thereby raising the cost of the development program

from \$1.3 billion to about \$2.6 billion and projecting a possible future expenditure of at least \$10.0 billion for a force of 150 aircraft. The Department of Defense, in response to congressional views, initiated a special Air Force study of the military, technical, and financial implications of the new project in March 1962 to clarify further the issues raised.

Continental Defense

For the protection of the North American continent against enemy bombers we have in being an extensive warning network and active defense system. We also have the means to detect a ballistic missile attack in sufficient time to warn our strategic retaliatory forces. Our greatest need remains an active defense against ballistic missiles, accompanied by further steps to improve and extend our warning systems and to reduce the vulnerability of existing bomber defenses to ballistic missile attacks.

The over-all defense effort is directed by the North American Air Defense Command (NORAD)—a joint U.S.-Canadian command, including personnel and units of the U.S. Army, Navy, and Air Force and of the Royal Canadian Air Force. NORAD headquarters at Colorado Springs, Colo., serves as the center for air and space monitoring systems and determines the defensive actions to be taken against enemy attacks. Work has been started to provide a blast-proof site for this command post. An improved automated system for the instantaneous evaluation of aerospace surveillance data and for the command and control of all assigned units is under development. An annual air defense maneuver, SKY SHIELD, involving the temporary grounding of all civilian aircraft, tests the continued readiness of NORAD forces.

Defense Against Bombers

The Pacific, Arctic, and Atlantic approaches to North America are covered 24 hours a day by an elaborate, interlocking system of radar stations which gives early warning of impending bomber attacks, identifies and tracks aggressor forces, and provides the means for the control and coordination of defense aircraft and missiles. During fiscal year 1962, some notable improvements were made in this network. The Greenland extension of the northernmost radar fence, the Distant Early Warning (DEW) line, became operational. The Semi-Automatic Ground Environment (SAGE) system was supplemented by manual back-up control facilities for directing aircraft and missiles from selected radar sites, and programs were approved for the construction of fallout shelters for the crews and the procurement of semi-automatic control equipment for additional radar stations.

These steps were taken because the hardening of the SAGE system against nuclear blasts proved to be impractical, thus creating a requirement for alternative means of controlling our air defense weapons in case all or most of the SAGE centers are destroyed. An automatic bomb alarm system was placed into operation to provide data instantaneously on the time and place of nuclear detonations near important defense sites.

Air defense weapons systems were also strengthened during the past year. The security of fighter-interceptor squadrons was increased by dispersal to additional bases, and their effectiveness was improved with the delivery of more advanced air-to-air missiles, including models with nuclear warheads. The last of the eight scheduled BOMARC squadrons, composed of long-range surface-to-air missiles, became operational and, at the close of the fiscal year, the greatly improved "B" model accounted for nearly half of the missiles available. As for shorter range defenses, steps were taken to increase the number of missiles per NIKE-HERCULES battery and to improve the associated radar equipment and the Missile Master control system.

Defense Against Ballistic Missiles

Much progress remains to be made in both our passive and active defense against ballistic missile attacks.

For passive defense, we have today the Ballistic Missile Early Warning System (BMEWS), including three stations, of which two—those at Clear, Alaska, and Thule, Greenland—were in service during the past year, while the third—at Fylingdales, United Kingdom—is expected to be ready in calendar year 1963. BMEWS is designed to give at least 15 minutes' warning of an impending attack, thus permitting our strategic retaliatory forces on ground alert to take appropriate defensive measures. Our alert problems, however, would be greatly reduced by a warning system that would increase the time interval and provide additional certainty. In support of this requirement, we are continuing exploratory development activities on several promising techniques.

In the field of active defense against ballistic missiles, a notable event occurred on July 19, 1962, when a NIKE-ZEUS intercepted near Kwajalein Island a target vehicle launched by an ATLAS booster from the Pacific coast. This testing program in the Pacific is part of our extensive and continuing effort to develop antimissile systems—an effort that is being pursued as a matter of highest national priority and that is supported with all the funds that can be effectively employed. The NIKE-ZEUS project is making vital contributions in this area, including the development of extremely pre-

cise tracking and guidance equipment, while other research projects are exploring alternative methods for terminal-point defense and the feasibility of interception shortly after launching or in midcourse. To assist in countering the threat of submarine-launched missiles, the Navy is developing more effective detection and tracking systems as part of its antisubmarine warfare program.

While progress is being made in these efforts, many problems remain to be resolved. In evaluating the effectiveness of an antimissile system, we must consider not only its intercept capability but also its vulnerability to enemy attack and its ability to overcome countermeasures, realistically evaluated against the penetration aids already available and under development. The degree of effective protection provided must then be balanced against the proportion of our national wealth required for deployment. The answers to these questions will constantly vary as further breakthroughs are made in offensive and defensive capabilities. We know that, based upon today's technology, an airtight defense against intercontinental ballistic missiles is not feasible—either for us or any other nation. We are continuing, as a matter of highest urgency, our research and development effort to reduce the shortcomings of proposed antimissile systems and to discover new methods for resolving this critical problem.

Civil Defense

On August 1, 1961, the Department of Defense formally assumed its new responsibilities for civil defense as directed by President Kennedy in Executive Order 10952 of July 20, 1961. These responsibilities include the development and execution of a national fallout shelter program, of an improved warning and communications system, and of a program to assist state and local governments in such postattack activities as decontamination, firefighting, rescue, and emergency restoration of vital facilities. Substantial progress was made in all civil defense tasks during fiscal year 1962.

The decision to undertake an intensified civil defense effort was reached after an extensive review of the possible effects of nuclear warfare. The results of this review clearly indicated that—as stated by the President—“for the foreseeable future, under a wide range of attack assumptions, large numbers of lives could be saved by adequate fallout shelter space.”

Within the Department of Defense, the Office of Civil Defense (OCD) was established as a separate civilian organization—with its own budget—directly responsible to the Secretary of Defense. Its transfer from the Office of Civil and Defense Mobilization made possible a closer integration of civil defense and military planning, and the use of existing Defense facilities for some operational and admin-

istrative functions brought economies in personnel that permitted the execution of a greatly expanded program with no increase in staff. A total of \$256.8 million was made available for obligation for civil defense functions during fiscal year 1962—\$207.6 million in direct appropriations to the Department of Defense and \$49.2 million in funds transferred from the former Office of Civil and Defense Mobilization.

The major achievement during the past year was the near-completion of a national shelter survey. The first phase of this program, more than 97 percent completed at the end of the fiscal year, involved the inspection of 374,000 buildings to determine the availability of shelter space—for 50 or more persons—with a protection factor of at least 100, i.e., radiation within the shelter would be one-hundredth or less of that existing outside. As a result, fallout shelter space for more than 55.7 million people has been located in some 110,000 buildings. The second phase of this survey, already well underway, involves a more detailed inspection of these buildings, an analysis of the work required to improve the shelter potential of buildings with a protection factor of less than 100, and the survey of some 16,000 caves, mines, and tunnels for shelter suitability. Procurement is underway and deliveries have started of markers for approved public shelters and of shelter materials, water containers, and sanitation, medical, and radiological kits.

Notable advances were made in many other areas. The fiscal year 1962 appropriation of \$17.5 million for the construction of fallout shelters in new and existing Federal buildings will add about 500,000 spaces to the national shelter inventory. A new, almost instantaneous indoor warning system became ready for its final operational tests. An enlarged research and development effort, involving over 200 projects and \$16.0 million in obligated funds, is focused on improving shelters and civil defense equipment and on providing basic data for long-range planning and postattack recovery. Training of specialists and instructors in the three OCD schools was expanded as nearly 6,700 students graduated; more than 260,000 citizens took special civil defense courses. Assistance to state and local governments in their civil defense efforts was increased. A more detailed account of civil defense activities in fiscal year 1962 may be found in annex C to this report.

To provide eventual fallout protection for all citizens, the Department of Defense proposed a plan with a goal of about 235 million shelter spaces to be reached over a 5-year period. It is estimated that 70 million of these might be obtained through annual reviews of available space in existing buildings—55.7 million spaces have already been located. Another 5 million spaces are to be provided through shelters in Federal buildings and 60 million spaces through private

initiative by industry, institutions, and home owners. A key element in the over-all plan is the Federal Shelter Incentive Program, which calls for the construction of 100 million spaces in nonprofit schools, hospitals, and welfare institutions with the help of a Federal contribution of up to \$2.50 per square foot of shelter space. The fiscal year 1963 budget request included \$460 million for this purpose.

The shelter incentive program required new legislation, but hearings on this program were deferred during the last session of the Congress. The fiscal year 1963 appropriation included no funds for new shelter construction. The money made available for civil defense functions permits the completion of the current effort of locating shelters in existing buildings, but all surveyed shelters cannot be fully stocked without additional appropriations.

Practical and sensible measures to minimize the loss of life in the event of a nuclear attack and to provide a basis for survival and recovery are an integral part of a balanced defense program, and the success of local civil defense plans depends to a large degree on a firm Federal commitment for future financial assistance. In view of these requirements, the Federal Shelter Incentive Program will be resubmitted to the next Congress.

General Purpose Forces

Our general purpose forces include most of the Army and Navy and all of the Marine Corps combat forces as well as the tactical forces of the Air Force. These are the units that will carry the major burden in any conflict short of general nuclear war.

The 1961 review of the military challenges confronting our Nation indicated an urgent need for increasing our limited warfare capabilities. A major reason for this increase was to provide the United States with a greater choice in an emergency than just, what President Kennedy called, "inglorious retreat or unlimited retaliation." In addition, the repeated announcement by the Soviet Union of its determination to further the spread of communism by subversion and so-called "wars of national liberation" argued in favor of an expansion of our limited war forces, particularly those dealing with counterinsurgency.

In response to these requirements, a program for strengthening our limited warfare capabilities was developed in the spring of 1961, but the Berlin crisis during the summer forced an acceleration in the implementation of this program as well as some major modifications. Much of the manpower immediately needed was provided by the reserve components, while the military Services built up their regular strength to the established longer range goals. The increase in the

size of the armed forces during fiscal year 1962 reflected only part of the actual increase in striking power, as the readiness of combat units was greatly improved and additional mobility and greater combat effectiveness were provided by the procurement of modern weapons and equipment.

Particular emphasis was placed during the year on improving our capabilities for countering so-called "wars of national liberation." In such conflicts the forces of communism tend to operate in the twilight zone between political subversion and quasi-military action. The military tactics are those of the sniper, the ambush, and the raid. The political tactics are terror, extortion, and assassination. To deal with these threats required a shift in our usual military thinking—from battle groups and divisions to companies, squads, and individual soldiers, from sophisticated missiles to the simplest types of weaponry. Ingenuity and new techniques, rather than money and manpower, are important for success in counterinsurgency. The counterinsurgency program of the armed forces has been developed not just as a short-term tactic for fighting guerrillas but as a dynamic long-range program for preventing subversion from taking hold as well as for defeating it where it has already erupted. It encompasses military, paramilitary, political, economic, psychological, and civic action.

In accordance with guidance provided by the Department of Defense, the military Services during fiscal year 1962 studied the possible contributions that each might make to counterinsurgency; established new educational programs for officers and enlisted men; trained numerous special units in the many different types of land, sea, and air actions required; initiated an expanded research and development program; and—above all—provided a new understanding of counterinsurgency techniques and operations to many thousands of military students from allied and friendly nations. Since primary responsibility for combating subversion and insurgency must necessarily be carried by the government and people of these nations, the education of U.S. military personnel has been focused on producing teachers, advisers, and training teams. United States assistance in counterinsurgency has already paid substantial dividends, not only in Vietnam, where local forces required direct U.S. support, but also in many other free world countries where the armed forces, in addition to strengthening internal security, are now playing a constructive role in the social and economic development of their homelands.

Army

During fiscal year 1962, the Army became a considerably stronger and a much better balanced organization for carrying out its assigned missions. It started the year with a personnel strength of 859,000—

11,000 below the authorized force level—and with 11 combat-ready divisions and 3 divisions used primarily for training purposes. At the end of the fiscal year, the active duty personnel of the Army totaled 1,066,000, and the number of combat-ready divisions had risen from 11 to 16—an increase of more than 45 percent.

In this expansion the Army faced a double task: First, it had to provide quickly the additional forces needed for meeting the immediate threat to allied rights in Berlin, and, secondly, it had to build up its regular forces to the higher level required for countering increasing Communist pressure throughout the world. It accomplished both tasks concurrently.

The additional personnel required immediately during the summer and fall of 1961 was obtained through voluntary enlistments and reenlistments, the draft, involuntary extensions of active duty, and the callup of reserves. By employing these procedures, the Army brought to active duty 230,000 more men than originally planned for the period July 1 to December 31, 1961. Enlistments and reenlistments accounted for 20,000 men above the January 1961 manpower plans and inductions under the Selective Service Act for 47,000. A total of 50,000 officers and men on active duty had their tours of duty involuntarily extended. Almost half of the Army buildup—113,000 men—was provided by the involuntary recall of National Guardsmen and Army Reservists. (See table 10.)

Starting in August 1961, the buildup proceeded swiftly. Draft calls, which had averaged less than 5,000 per month during fiscal year 1961, were stepped up to 13,000 in August and 25,000 in September and amounted to 20,000 in both October and November. At the end of August, over 46,000 Army Reservists—some in units and others as individual “fillers” for existing units—were called to report for active duty in late September and early October. On September 19, two National Guard divisions—the 32d Infantry from Wisconsin and the 49th Armored from Texas—were ordered to report for duty on October 15 and begin combat training. The three active Army training divisions were relieved of their training responsibilities in August, were brought to full strength, and started intensive training to achieve an early combat-ready status. To take care of the large inflow of new personnel, three new training centers were established, with recalled reservists of the 100th Division from Kentucky providing the cadre for one such center.

Simultaneously, Army units in Europe were reinforced. In August, the Berlin garrison was strengthened by 1,500 men. The flow of modern equipment was accelerated. In September, some 40,000 troops started for Europe to bring the combat and support units of the Seventh Army to full strength. Heavy equipment, such as artillery

and vehicles, for two additional divisions was prepositioned in Europe to be available in case deployment of more troops became necessary.

By the end of 1961, the three former training divisions of the Army had become combat ready, and the two mobilized National Guard divisions completed their combat training in February 1962. All five divisions were assigned to the striking force of the Strategic Army Corps (STRAC), which was expanded from one corps with three divisions to two corps, each with four divisions. To replace the two National Guard divisions, scheduled for early return to reserve status, the Army activated two new regular divisions—the 1st Armored on February 3 and the 5th Infantry (Mechanized) on February 19, 1962. Both divisions are being organized in accordance with the new ROAD concept, which provides greater flexibility, firepower, and mobility and permits more effective control by commanders.

With these two divisions, the Army will continue to maintain a regular force structure of 16 combat-ready divisions during fiscal year 1963, supported by five brigades, four armored cavalry regiments, eight battle groups, and many smaller units. The Army Special Forces, trained for counterinsurgency operations, were doubled in size during fiscal year 1962 and will be expanded to three times their 1961 strength by June 30, 1963. The year-end personnel strength of the Army for fiscal year 1963 was established at 980,000 men, including a temporary increase of 20,000 to smooth out fluctuations in training levels. The total authorization was 110,000 higher than that for fiscal year 1961.

Modern weapons and equipment in greatly increased quantities were also provided to the rapidly expanding Army. Both the amended 1962 and the 1963 budgets included over \$2.5 billion for Army procurement—65 percent more than appropriated for fiscal year 1961. Orders for the M-14 rifle, the M-60 machine gun, the M-113 armored personnel carrier, the M-60 main battle tank, a new family of self-propelled artillery, and many other weapons were substantially expanded. While the new weapons were providing increased firepower and ground mobility, greater air mobility was being obtained with the delivery of additional Caribou transport and Mohawk surveillance aircraft and of modern transport, utility, and observation helicopters.

Similar progress was made in the missile field. The solid-fueled SERGEANT, a tactical surface-to-surface missile, became operational and started to replace the liquid-fueled CORPORAL, operational since 1954. The ENTAC antitank missile, a replacement for the interim SS-10 missile, was delivered in substantial numbers. Additional HAWK surface-to-air missiles increased the air defense capa-

bilities of the field forces. Tactical firepower was improved with further deliveries of HONEST JOHN and LITTLE JOHN rockets.

Navy and Marine Corps

The Navy and Marine Corps, like the Army, rapidly improved their limited war capabilities during fiscal year 1962. The Navy started the year with a personnel strength of 627,000 and an active fleet strength of 819 ships, 375 of which were warships. By June 30, 1962, the Navy had 666,000 men on board—an increase of 39,000—and the active fleet consisted of 900 ships, including 397 warships. The number of Marines increased by 14,000 during fiscal year 1962—from 177,000 to 191,000.

To meet its higher manning requirements, the Navy depended primarily on voluntary enlistments and reenlistments, but also recalled about 8,000 reservists to active duty and extended the tour of duty of 7,000 officers and men between July and December 1961. The Marine Corps, relying entirely on voluntary enlistments and reenlistments, reached its increased manpower goal in December 1961.

The expansion of the fleet in the late summer of 1961 was achieved by ordering into active service 40 destroyer-type vessels with their reserve crews, reactivating 33 amphibious and support ships from the reserve fleet, and retaining in the fleet 6 ships previously scheduled for deactivation. Further increases in strength were obtained with the commissioning of new ships, including two aircraft carriers—the nuclear-powered *Enterprise* and the conventionally powered *Constellation*—the first nuclear-powered guided missile cruiser—the *Long Beach*—and eight guided missile frigates and destroyers. The air defense capability of all these new ships was provided by advanced TALOS, TERRIER, or TARTAR missiles. With the 1962 and 1963 budgets calling for the construction and modernization of twice as many ships as in fiscal years 1960 and 1961, the striking power of the fleet will continue to expand in the years ahead.

Increased naval air strength was obtained through more rapid procurement, the acceleration of overhaul schedules, and the recall to active duty of 18 reserve air squadrons, which were used to augment the fleet's antisubmarine capabilities. Skyhawk light attack bombers were delivered in substantial numbers. The Phantom, a combination fighter and attack aircraft that has established numerous records, became fully operational. The first squadron of Vigilantes, the Navy's newest heavy attack bomber, was assigned to the *Enterprise*. Increased procurement of the latest models of BULLPUP air-to-surface and SIDEWINDER and SPARROW III air-to-air missiles strengthened the combat effectiveness of naval aircraft. Antisubmarine forces received new patrol aircraft and helicopters, which not

only extended the range of surveillance but also provided improved equipment for detection and attack.

The Marine Corps, with its additional personnel strength, increased the manning levels of its three division-wing teams and established the nucleus for a fourth. The amphibious lift capability for Marine assault troops was considerably expanded, particularly with the delivery of two LPHs—a new, fast troop carrier with facilities for large-scale helicopter operations—and of the first LPD—a high-speed amphibious ship carrying smaller landing craft that can be quickly launched at sea. Increased procurement funds greatly accelerated the modernization of Marine Corps weapons and equipment.

Navy combat forces were assigned, as in the past, to four fleets—the First and Seventh in the Pacific and Far East and the Second and Sixth in the Atlantic and Mediterranean. The largest of these, the Seventh Fleet, operating with three attack carriers, provided a stabilizing force in the Far East. The Sixth Fleet, including two attack carriers, helped to guard the southern flank of the North Atlantic Treaty Organization in the Mediterranean. One Marine battalion landing team was assigned to serve with each of these fleets. Ships from the First and Second Fleets, with home ports on the Pacific coast, Hawaii, and the Atlantic coast, were rotated on regular schedules to the two advanced fleets. As for the three Marine division-wing teams, one was stationed on the east coast and another on the west coast, while the third was deployed in Hawaii and the western Pacific.

Tactical Air Forces

Substantial increases were also made during fiscal year 1962 in the tactical air support for ground forces. The buildup from 22 to 31 tactical aircraft and missile wings—an increase of over 40 percent—reflected in part the immediate requirements of the Berlin situation but also included the first increments under a longer range program for strengthening the tactical air forces.

In response to the Berlin crisis, the Air Force, starting in August 1961, called 25 Air National Guard fighter, fighter-interceptor, and reconnaissance squadrons to active duty, equipped with F-84, RF-84, F-86, F-100, and F-104 aircraft. The scheduled deactivation of some tactical squadrons stationed in Europe was temporarily suspended. In September 8 regular squadrons of F-100's and F-104's were sent to Europe, followed in November by 11 Air National Guard squadrons. Eight of the latter flew to Europe, completing the mass flight without incident—the first such long-distance oversea deployment of reserve units. The remaining recalled units were retained in the United

States as part of a strategic reserve available for oversea contingency action whenever needed.

The expansion of the active tactical air forces was accompanied by a considerable increase in the procurement of aircraft. Compared to fiscal year 1961, the 1962 budget included a 45 percent and the 1963 budget a 140 percent increase in the number of aircraft to be purchased. Qualitative improvement was obtained with the delivery of additional F-105's. One wing of MACE surface-to-surface guided missiles continued to supplement the striking power of tactical aircraft units.

To maintain the tactical air forces at a high level of strength after the release of the reserve units during the summer of 1962, some of the aircraft that the reserves brought with them are being transferred to regular units and will be retained until the new aircraft recently ordered become available.

Airlift and Sealift

The improvement of our airlift capability was among the first actions taken by the new Administration early in 1961. The additional orders for C-130 and C-135 cargo aircraft placed at that time resulted in increased deliveries of these large and efficient carriers during fiscal year 1962 and provided a substantial and urgently needed addition to our military airlift forces.

During the summer of 1961 further improvement was achieved with the recall to active duty of six Air National Guard transport squadrons, equipped with C-97 Stratofreighters, and five Air Force Reserve troop carrier squadrons, equipped with C-124 Globemasters. Several regular Air Force squadrons of C-124 and C-118 cargo planes, previously scheduled for deactivation, were retained in service.

To assure the availability of adequate airlift in future years, the procurement of C-130's was further increased in the 1962 and 1963 budgets, and the development of the new jet transport, the C-141, was accelerated. Until these C-130's and C-141's are delivered, some of the Air Force Reserve C-124 transport aircraft will be assigned to regular units after the reservists are mustered out during the summer of 1962.

Our combined military and civil sealift capability continued to be generally adequate during fiscal year 1962, and current plans provide for no major changes in the composition of our transport fleet.

Reserve Forces

During fiscal year 1962, the reserve forces demonstrated once more their great importance to our national security. The 148,000 reservists recalled to active duty in accordance with Public Law 87-117,

enacted on August 1, 1961, made possible the rapid reinforcement of our military strength and provided convincing evidence of the Nation's determination to maintain its rights in the face of Communist challenges. These reservists assisted their country at considerable personal sacrifice, involving not only the disruption of their civilian pursuits but also inconvenience and, in some cases, hardships for them and their families. The Nation owes all of them a debt of gratitude.

The progress made during the year in the buildup of our regular forces permitted the release of all reserve units by the end of August 1962. Of the reservists recalled, only those remained on active duty who decided to stay on voluntarily.

While the recall of the reservists during the summer of 1961 made it possible to meet urgent readiness requirements, it also revealed some of the problems remaining in the reserve establishment. With Army reservists accounting for 113,000 of the 148,000 recalled—the respective totals for Navy and Air Force were 8,000 and 27,000—it was inevitable that shortcomings would be particularly highlighted in the Army reserve components. Army reserve units and individuals were in a higher state of readiness than ever before but still below the level required for a truly ready service. Equipment shortages existed in many units and had to be met by redistribution from other Army assets. The assigned personnel strengths of the recalled units averaged 70 percent of full active duty strength, thus making it necessary to fill existing vacancies with individual reservists. The lack of adequate information on the status of individual reservists recalled as “fillers” and the urgent requirement for men with special skills requiring long training combined to produce some inequities and some misassignments. As the result of this experience, the Army reserve program was carefully reviewed in the months following the partial mobilization, and steps were taken to provide solutions to the problems encountered.

To prevent future inequities and misassignments, additional information on individual Army reservists was gathered regarding their experience, occupational specialty, and remaining period of obligated service. As a result, the information available today on reservists in the “filler pool” is far superior to that existing in 1961 and should improve still further in the months ahead. Improvement in the equipment available to reserve units is being achieved as the result of the substantial increases in Army procurement included in both the 1962 and 1963 budgets.

In addition, the plan for improving the combat readiness of Army reserve components, first submitted to the Congress in May 1961, was adjusted in the light of the lessons learned. It was clear that, in order to make possible a more rapid deployment of essential reserve units,

a higher manning level, more advanced training, and better equipment had to be provided and that priority units be selected in accordance with current contingency plans. A realistic program also demanded that units excess to contingency requirements or obsolete because of changes in military technology be eliminated.

A revised plan, based on these guidelines, was outlined to the Governors' Conference on July 2, 1962. It provided for assigning 66 percent, instead of 47 percent, of all Ready Reservists to priority units—which would include six combat reserve divisions—realigning four Army National Guard and four Army Reserve divisions to priority brigades, eliminating more than 1,700 obsolete or excess units, and adding about 1,000 new units required by the current plans. While the governors review the impact of these adjustments from the point of view of local requirements, the plan will be further refined by Army officials.

Another matter extensively discussed during the year concerned the number of Army Ready Reservists on drill pay status. The plan for the reorganization of the Army reserve components indicated a requirement for a paid drill strength of 642,000, as compared to the authorized strength of 700,000. The Congress, in the Defense Appropriation Act for fiscal year 1963, indicated its desire that the Department of Defense continue to program for the 700,000 total—400,000 for the Army National Guard and 300,000 for the Army Reserve. This objective was agreed upon but, in line with the common objective for higher combat readiness, made subject to the requirement (1) that the same recruiting standards apply to the reserve components as to the regular Army, (2) that at least 90 percent of the personnel in reserve units be qualified by experience and training for their positions, and (3) that reserve units not exceed their authorized strength except as specifically approved.

Some adjustments are also being made in the reserve components of the Navy, the Marine Corps, and the Air Force, including the Air National Guard. The organization of the Marine Corps Reserve, for example, is being focused on providing the units required for a fourth Marine division-wing. Other realignments are in response to changing mobilization requirements and the availability of modern weapons and equipment.

Including the 365,000 reservists on active duty, the strength of the Ready Reserve on June 30, 1962, was 2,365,000—or 242,000 less than at the beginning of fiscal year 1962—and the total strength of all reserve components decreased from 3,966,000 to 3,360,000. The lower year-end figures reflected an increase in the number of reservists who completed their obligated service while, at the same time, fewer

men were entering reserve units, partially because of the involuntary extension of tours of active duty and the temporary suspension of the program for direct enlistment in the reserve through 3 to 6 months of active duty training. Only 92,000 enlisted men were accepted for such training during fiscal year 1962 as compared to 126,000 during the preceding year.

Defense Space Programs

Department of Defense space activities continued to increase substantially during fiscal year 1962. About \$1.3 billion was authorized for projects designed to meet military needs and to advance our overall capabilities in space technology. This 1-year effort was nearly as great as that for the previous two fiscal years combined. Military space expenditures for fiscal year 1963 are estimated to total \$1.6 billion—or almost three times as much as in fiscal year 1960. Through these extensive programs we aim to make certain that the technology is developed to cope with any military challenge that may develop in outer space and that Department of Defense resources support projects which provide needed capabilities uniquely or more efficiently attained through the use of space.

Cooperation between the Department of Defense and the National Aeronautics and Space Administration (NASA) was further improved during the year. More efficient utilization of the resources available to the two agencies was achieved through agreements reached by the joint Aeronautics and Astronautics Space Coordinating Board. New procedures were established to assure full exchange of information and early identification of common problems requiring resolution. On February 24, 1962, the Secretary of Defense assigned primary responsibility for assisting NASA to the Air Force, which established special liaison offices to provide the necessary cooperation on the technical level for such NASA projects as GEMINI and APOLLO. Over 100 officers are serving with NASA, and the Department of Defense procures many of the launching vehicles used by NASA, makes range facilities available, assists in construction projects, and has the responsibility for research on various future NASA booster engines, particularly those employing solid propellant. It is estimated that Defense work in support of NASA amounted to more than \$550 million in fiscal year 1962.

Department of Defense projects directed at meeting current military requirements include the development of satellite systems for communications, navigation, geodetic measurements, and ballistic missile warning. As in other research projects dealing with very ad-

vanced equipment, various problems were encountered in this work during fiscal year 1962, but continued progress was made. The communications satellite program was reoriented in the spring of 1962 to aim the satellite development part of the project at more realistic goals, and to bring program plans into consonance with the lift power of available boosters. Under a new directive, the Air Force was assigned responsibility for the development, production, and launching of all communications satellite space devices and the Army for the development and operation of ground communications stations. The Defense Communications Agency will assure the effective integration of ground and space components.

Considerable effort was devoted to extending our knowledge of space technology and developing basic equipment to meet possible future military needs in space. Much valuable information was obtained from the program for developing, testing, launching, tracking, and controlling large satellites. Other "building block" efforts were directed toward the development of advanced space sensors, the evolution of new propulsion systems and power supplies, developments in materials, and further research in bioastronautics. In support of the National Launch Vehicle Program, the development of TITAN III was approved. This launch vehicle, consisting of a modified TITAN II combined with two solid-fueled boosters and capable of carrying various upper stages, is planned to be a standard booster for placing heavy payloads into orbit in the years to come.

Experimental programs in support of manned space flight also advanced during the year. The joint NASA-Department of Defense X-15 aircraft set new records, reaching a speed six times that of sound and an altitude of over 246,000 feet, and provided further information on maneuverability at high altitudes and on reentry into the atmosphere. The development plan for Dyna-Soar, now designated X-20, was reoriented by eliminating the suborbital flight phase for this piloted glider, thus making it possible to move directly to orbital flight after test drops from a B-52. TITAN III is scheduled as the booster for X-20 orbital flights.

Advanced radars and other sensory devices improved surveillance coverage by the NORAD-controlled Space Detection and Tracking System (SPADATS). The NORAD collation center obtains its data from the Navy-operated Space Surveillance System (SPASUR)—a detection "fence" stretched across the southern United States—SPACETRACK radars managed by the Air Force, other military sources, and scientific centers. Research was also continued on a satellite system for inspecting and reporting on other satellites in space.

III. Defense Management

Parallel with the many actions taken during fiscal year 1962 to increase the striking power of our armed forces, the Department of Defense undertook a major effort to make the management of Defense activities more efficient and more effective. This effort carried out the President's instructions to operate whatever forces might be required for our security at the lowest possible cost. Moreover, under the provisions of the National Security Act of 1947, as amended, the Secretary of Defense is directed "to eliminate unnecessary duplication" and "to provide more effective, efficient, and economical administration in the Department of Defense," particularly in the fields of common supply and service activities and of new weapons or weapon systems.

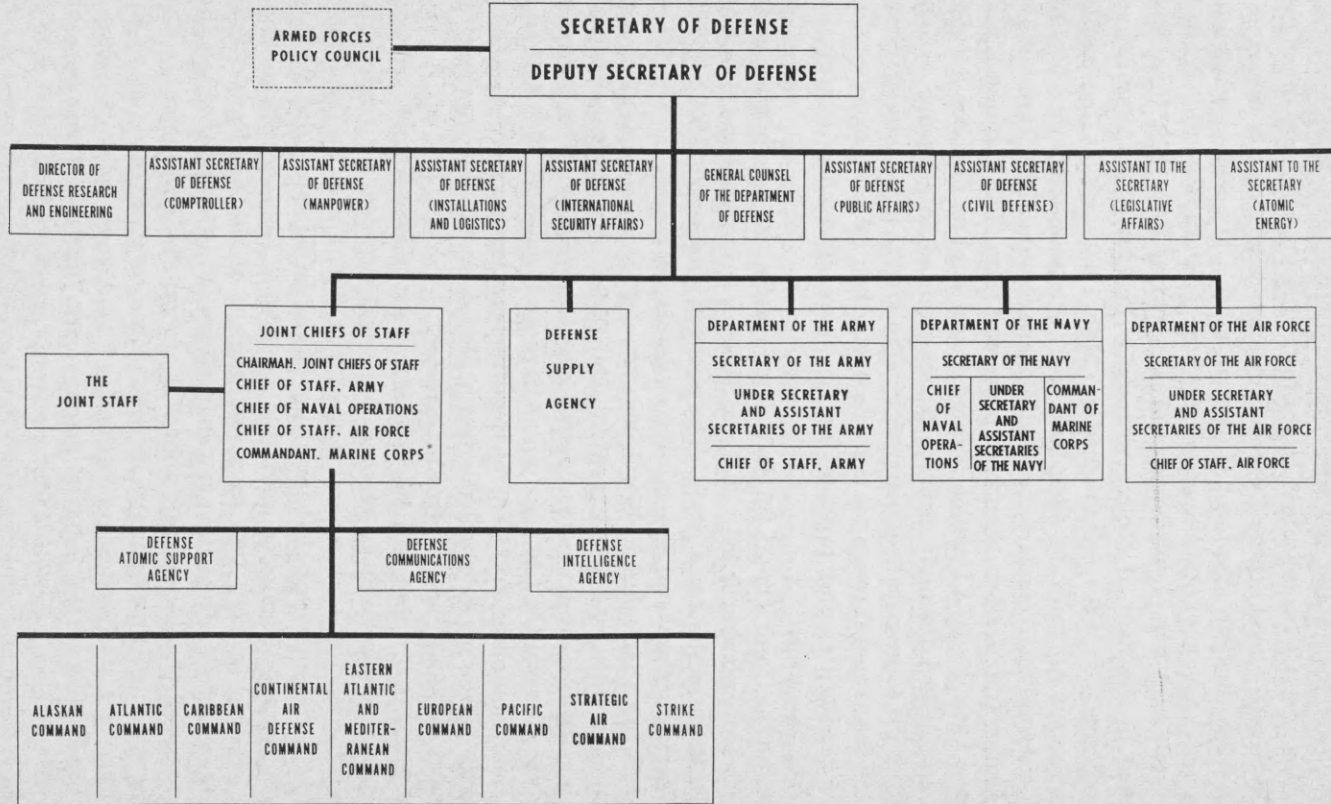
The management changes made during the past year were made within the established organizational framework of the Department and were based on case-by-case analyses of existing procedures in specific areas. Corrective action was taken only when the proposed alternative procedures clearly promised significant improvement in getting the work done. With frequent shifts in the international situation and progress in military technology subjecting the armed forces to constant change, organizational flexibility remains a major requirement for the Department. Efficient management is a never-ending task.

Organization

The Secretary of Defense exercises his control over the Defense establishment through two command lines: One, for the operational command of our combatant forces running through the Joint Chiefs of Staff to the unified and specified commands; and the other, for the direction of support activities running to the military departments and other support agencies. (See fig. 1.) Improvements were made in both command lines during the past fiscal year. While some of these have been mentioned earlier and others are discussed in some detail below, they are summarized here to provide an over-all view of the organizational trend in the Department.

In the operational command area, the establishment of the U.S. Strike Command, which was announced on September 19, 1961, and

DEPARTMENT OF DEFENSE



* WHEN PERTAINING TO MARINE CORPS MATTERS

Figure 1.

became operational on December 28, 1961, placed practically all combat-ready forces under the direction of unified and specified commanders, who now total nine. In support of the operational direction of the armed forces, three Defense agencies report to the Secretary of Defense through the Joint Chiefs of Staff. The Defense Atomic Support Agency (DASA), established in July 1947 as the Armed Forces Special Weapons Project and renamed in May 1959, furnishes support in the field of atomic weapons. The Defense Communications Agency (DCA), established in May 1960, acts as the single manager for all military long-haul, point-to-point communications, with the mission to convert the existing separate facilities into a single integrated system effective in both peace and war. The Defense Intelligence Agency (DIA), which became operational on October 1, 1961, was established to unify previously fragmented intelligence activities at the Washington headquarters level related to the strategic direction of the armed forces and, thus, to strengthen Defense-wide intelligence capabilities and provide for the more efficient utilization of available resources.

As for the Joint Chiefs of Staff organization, its capabilities were substantially strengthened. A Vice Director was appointed to assist the Director of the Joint Staff. The position of Special Assistant for Counterinsurgency and Special Activities was established. The functions of the Plans and Policy Directorate, J-5, were realigned and broadened, with J-5 assuming responsibility for programing and wargaming activities previously assigned to separate offices. The National Military Control Center, the Joint Alternate Command Element, and the Joint Command and Control Requirements Group were created in response to the major emphasis being placed on the development of effective command and control procedures.

In the support area, all the military departments sought ways to improve the effectiveness of their logistical support for the operational forces. The reorganization of the Air Force support commands in the spring of 1961, resulting in the establishment of the Air Force Systems Command and the Air Force Logistics Command, was followed in July 1961 by a realignment of the Air Force headquarters staff to adjust it to the changes made in the field commands and to speed the review and approval of important programs. The Army announced on January 16, 1962, a major reorganization of its headquarters staff, affecting primarily the Army's seven Technical Services. Most of the materiel management functions formerly performed by these Technical Services were transferred to a new Army Materiel Command, and responsibility for developing new operational doctrine and organizational concepts as well as qualitative materiel

requirements was assigned to a Combat Developments Command established by the reorganization. Control over virtually all training functions in the Army was given to the Continental Army Command. The personnel functions of some 20 different agencies in the Army headquarters were consolidated in an Office of Personnel Operations. In the Navy, an over-all review of headquarters activities was initiated, to be completed during fiscal year 1963.

Of major importance to improved management in the support area was the establishment of the Defense Supply Agency (DSA), announced on August 31, 1961. The new agency, which reports directly to the Secretary of Defense, gradually took over management responsibility for eight common supply categories, previously exercised by the Secretaries of the Army and Navy—subsistence, clothing-textiles, medical supplies, petroleum, general supplies, industrial supplies, construction supplies, and automotive supplies. For the more than one million items in these categories, DSA will manage all activities relating to procurement, wholesale distribution, and inventory management. In addition, electrical and electronics supplies were placed under single integrated management during the past year and assigned to the new agency. Other functions assumed by DSA include responsibility for the Military Traffic Management Agency, the Consolidated Surplus Sales Offices, and the Armed Forces Supply Support Center, which handled Defense-wide support programs such as the Federal Catalog, standardization, and materiel utilization. This consolidation of common logistical activities should make possible considerable cost reduction and, at the same time, provide more effective support to field units.

Together with the improvements in the operational chain of command and in the support area, further progress was made in facilitating decision-making at the policy level. The regular meetings between the Secretary of Defense, the Deputy Secretary of Defense, and the Joint Chiefs of Staff were continued. The separate meetings of the Armed Forces Policy Council, the Joint Secretaries, and the Secretary's Staff Council were consolidated into a single weekly staff meeting. The adjustment in the major responsibilities of the seven Assistant Secretaries of Defense, started in January 1961, was completed in August with the assignment to civil defense of the one position remaining vacant. The offices of all the Assistant Secretaries of Defense were reorganized to enable them to discharge better their responsibility for providing timely, meaningful, and reliable staff advice. The program for reducing committee work resulted in the dissolution of nearly 600 committees between January 1961 and June

1962. Additional steps taken to improve management in specific functional areas are noted below.

Planning—Programing—Budgeting

The key tool in the management improvement program of the Department of Defense during fiscal year 1962 has been the new concept for tying together military plans, programs, and budgets into a single system that permits a more rational allocation of resources and facilitates meeting military requirements at the lowest possible cost. The fiscal year 1963 budget, developed during the fall of 1961, provided the first opportunity for applying this concept. This test proved most successful. Based on this experience, refinements and adjustments were introduced into the system that should improve still further the decision-making process.

In general, the new system is making four major contributions to Defense management. First, program proposals are not evaluated from the relatively short-range perspective of the annual budget cycle but in the context of approved military plans stretching at least 5 years into the future beyond the budget year. Secondly, these proposals are judged not as those of a particular military Service but in the light of their potential contribution to specific Defense-wide missions, such as strategic retaliation, continental air defense, or limited war. Thirdly, the full financial implications of each program element are calculated, including not only research, development, procurement, and investment costs but also the costs of deploying, operating, and maintaining the proposed force or weapon system. And finally, alternative ways for achieving specific objectives are developed and their total costs estimated, thus providing a range of choices that permits a final judgment on the basis of cost effectiveness.

The new integrated planning-programing-budgeting system, based on the steps taken during earlier years to strengthen the financial management of the Department, is an evolutionary development. It is designed to supplement, not to supplant, the established financial and budgetary procedures and to provide the executive branch and the Congress with more informative data for the crucial decisions with which they are charged by the Constitution.

Military requirements for the forces, weapons, and installations needed for our national security are determined in the first or planning phase of the new system. The Joint Chiefs of Staff and the planning staffs of the military departments play the principal role in this phase and are encouraged to consider alternative ways of achieving specific objectives. The result of this planning effort is a set of

requirements, expressed in physical terms and time-phased over a period of years.

The second or programming phase provides the bridge between planning and budgeting. The various military requirements are organized into nine major programs. Five of these are "mission-oriented"—Strategic Retaliatory Forces, Continental Air and Missile Defense Forces, General Purpose Forces, Airlift and Sealift Forces, and Civil Defense—while the remaining four fall into more general categories—Research and Development, General Support, Reserve Forces, and Military Assistance. For each program element a time-phased schedule is developed to insure that men are recruited and trained, equipment and supplies are produced and delivered, and new weapon systems are developed and deployed in time to meet the requirements of the military planners. Next, the costs of the various program items are estimated and the end result is a detailed 5-year program presenting requirements in both physical and financial terms.

This 5-year program becomes, after close review and approval by the Secretary of Defense, the basis for the third or budget phase. The portions of the various programs to be financed in the upcoming fiscal year are now translated into the standard functional categories of the Federal budget, such as military personnel, operation and maintenance, procurement, etc. The final product is the President's annual budget proposal for the Department of Defense, a 1-year budget solidly anchored to a long-range program directly related to our military requirements.

As for the fiscal year 1963 budget, its formulation was initiated in the spring of 1961, when the military departments were requested to develop their program proposals for the period 1963 through 1967 based solely on their judgment of the forces required for meeting our national security objectives. Simultaneously, a series of special studies was initiated to review the most critical requirements problems. The unilateral estimates of the military departments, amounting to \$63.0 billion in total obligational authority, were carefully analyzed during August and September, and the resulting tentative program decisions guided the military departments in the preparation of their detailed budget requests. The final actions on the budget proposals were taken between October and December. With the comments of the military departments on the tentative program decisions available, the Secretary and Deputy Secretary of Defense, in consultation with their principal advisers, passed on some 560 individual items ranging in value from several hundred thousand dollars to several hundred million dollars. As in the past, Bureau of the Budget representatives participated in this review.

The resulting fiscal year 1963 budget for the military functions of the Department of Defense was submitted to the Congress in January 1962 and requested \$50.4 billion in new obligational availability, exclusive of military assistance. A subsequent amendment, proposed on July 31, 1962, to provide \$277 million for military construction, and the August 13, 1962, supplemental request for \$158 million, to be used primarily for military personnel, brought the total to \$50.8 billion. Congressional committees welcomed the new emphasis in the presentation of the budget on military missions and long-range programs. The new obligational availability approved by the Congress between August and October 1962 totaled \$50.0 billion, or \$0.8 billion less than requested. The congressional adjustments included decreases for civil defense, military personnel, and military construction, partially offset by increases in the procurement and research and development categories. (See table 6.)

Subsequent to the first application of the planning-programing budgeting system, numerous actions were taken to improve its operation. Among these were the new instructions, issued in April 1962, for the continuous control of all program changes, prescribing special approval by the Secretary of Defense for new research projects, for any adjustments in the force structure or the military and civilian personnel ceilings, and for changes in cost estimates above specific thresholds. Simultaneously, a system for monthly progress reports on about 200 major program elements was established, providing data for measuring the work accomplished against the established milestone schedules. To permit an orderly introduction of program changes into the new system, the changes reflecting the President's budget decisions were asked to be submitted in December, those concerning the annual projection of the programs for an additional year in May, and those pertaining to congressional action on the budget in August. At the same time, the system is being mechanized, since a computer is best suited for handling large amounts of required data rapidly and efficiently. With these improvements it should become possible to evaluate progress toward specific goals at all times in both physical and financial terms and to develop more effective fiscal controls over the use of public funds.

Much remains to be done, however, in order to obtain the full benefits inherent in the new system. The structure and content of the major military program groupings will have to be further refined. Better cost data are urgently needed as well as better measures for evaluating military worth and effectiveness. As progress is made toward these goals, policy officials will have available for the first time an increasingly comprehensive picture of all military programs

in terms of cost effectiveness and will be able to judge the contribution of each program item to our national security objectives.

Concurrently with the establishment of the new programing system, work continued on improving long-established financial management tools. Methods of accounting for reimbursable transactions, amounting to about \$14 billion annually, were simplified and modernized. Expenditure accounts in the Navy and the Air Force were substantially reduced. Provision was made for the more expeditious handling of reports from the General Accounting Office and for the review of both the reports and the proposed replies by the Secretary and Deputy Secretary of Defense.

The use of revolving stock and industrial funds continued to contribute to more efficient management. Stock fund inventories were reduced from \$6.6 billion to \$6.2 billion during the fiscal year, while sales increased from \$5.0 billion during fiscal year 1961 to \$5.8 billion during fiscal year 1962. Sales by industrial fund activities also increased from \$2.6 billion to \$3.0 billion for the same years. Withdrawals of excess capital from stock and industrial funds during the year provided \$388 million, which, with the approval of the Congress, was transferred to military personnel accounts in lieu of additional appropriations. Including this year's transfers, a total of almost \$6.2 billion has been withdrawn from these funds since 1953, of which \$3.4 billion reverted to the Treasury and nearly \$2.8 billion was used to finance military construction and military personnel costs. (See table 7.)

Research and Development

Improvement in the management of research, development, test, and evaluation (RDT&E) activities was a subject of major concern during fiscal year 1962. The actions taken should not only result in the more timely delivery of more effective weapons to the fighting man but also make possible the production of these weapons at lower cost.

RDT&E programs account for nearly 15 percent of the Defense budget or about \$7 billion annually. The tremendous size of the effort alone creates major management problems, which are further compounded by constantly changing demands and by great variation in the importance of the programs to national security and in the type of work required. In these circumstances, management improvement is more easily achieved by developing special procedures for particular problems rather than by general policies applicable to all RDT&E programs.

To help in the solution of these problems, four principal objectives were established to serve as guidance for all RDT&E activities. In the first place, greater weight must be given to simplification, standardization, reliability, and the use of existing technology and techniques in order to produce weapons and equipment that the fighting man can readily use. Secondly, more reasonable, not just shorter, leadtimes must be developed. Thirdly, confronted with a definite limitation in available scientific and engineering manpower, steps must be taken to assure that these scarce resources are used in the most effective way possible. And finally, in order to arrest the ever-rising cost trend in RDT&E activities, more effective procedures must be established to control costs and improve cost forecasting.

In trying to reach these objectives, RDT&E projects should be evaluated in accordance with their urgency and feasibility. Some of them can be judged to be "critical" to the Nation's defense in the sense that without their successful completion our security might be impaired. Illustrative of this classification are the first radars, atomic and thermonuclear weapons, long-range ballistic missiles, and, more currently, an effective antiballistic missile capability or a fully dependable command and control system. Other projects can be considered as "important" but not "critical," and still others as merely useful or desirable. Obviously, the same management procedures should not be applied to all. For example, "concurrency"—the overlap of development, production, and installation efforts—is justified only, if at all, for the most "critical" projects, in view of the risks, high costs, and inefficiencies associated with such crash programs. While these distinctions between projects are not always easy to make, this procedure provides management with a useful measurement for determining the degree of effort required, particularly when combined with thorough feasibility studies which highlight the technological gaps still to be filled.

Within this broad framework, our most helpful management tool has proved to be the classification of all RDT&E projects in accordance with the type of work required and the results to be achieved. Six major categories were established—research, exploratory development, advanced development, engineering development, operational systems development, and management and support.

The "research" category deals with efforts to increase our knowledge of natural phenomena and includes, for example, the study of underwater acoustics and of atmospheric densities. Such studies may suggest entirely new solutions to troublesome military problems. About 5 percent of RDT&E funds are devoted to this work.

The next two categories are focused on the development of new technology, and each accounts for about 15 percent of the RDT&E

budget. "Exploratory development" is directed toward the solution of specific military problems with emphasis on determining the feasibility of new projects before moving them into the "advanced development" category and authorizing the construction of test or experimental hardware. Examples of "exploratory development" are the DEFENDER program for advanced antiballistic missile studies and the VELA program for the detection of nuclear explosions, while such projects as Dyna-Soar, experimental hydrofoils, and the V/STOL aircraft are currently approved for "advanced development."

"Engineering development" and "operational systems development," accounting for more than 50 percent of RDT&E funds, aim at the production of hardware for field use. The type of work is identical in both categories, but projects in the latter, unlike those in the former, have been approved for production and deployment. "Engineering development" has been authorized for the NIKE-ZEUS, the TRANSIT satellite, and the B-70/RS-70, while "operational systems development" work is illustrated by the MINUTEMAN and POLARIS weapon systems.

The remaining 15 percent of the RDT&E budget is devoted to "management and support" and includes the costs for operating the national missile ranges and general support for test centers and laboratories.

This RDT&E program structure makes possible a more effective direction of the total effort. In the "research" category, largely devoted to the support of the work of individual scientists, stability of effort is essential to success and to the retention of highly competent personnel. Here, as well as in "exploratory development," flexibility in approach must be permitted and encouraged in order to promote the generation and production of new ideas. The fact that more than half of the RDT&E budget is allocated to hardware engineering emphasizes the need for effective cost controls and for assurance that projects moving into this stage are thoroughly analyzed before being approved for development. Such assurance is provided by the "program definition phase," which is being applied to all major weapon systems. This type of review makes certain that specifications are as firm as possible, that no major technological gaps remain to be filled, that the proposed schedules are reasonable, and that actual costs are realistically estimated. By procedures such as these, it is hoped to reduce to a minimum the disappointments so often encountered in the past in regard to schedules and costs.

The complicated problem of Government contracting for research and development was reviewed during the year by an interdepart-

mental group, headed by the Director of the Bureau of the Budget. The group's recommendations, approved by the President on April 30, 1962, included suggestions for improving Government recruitment of able scientists, resolving problems of possible conflict of interests in the research area, providing greater incentives to contractors for improving their performance and reducing costs, and making better use of the talent available in Government laboratories. Some of these recommendations were in line with programs already established in the Department of Defense, while for the other recommendations appropriate actions were initiated before the close of the fiscal year. It is expected that this effort will result in greatly improved utilization of private as well as public research and development resources.

Another area of major concern, which has also been the subject of considerable congressional interest, has been the efficient dissemination of the ever-increasing amount of scientific and technical information. To improve Defense operations in this field, additional funds and personnel were authorized for the Armed Services Technical Information Agency (ASTIA), and provisions were being made for closer coordination between the specialized information centers of the military Services and ASTIA. The development of better procedures for providing policies to govern the functions, organization, and operation of scientific and technical information activities was announced after the close of the fiscal year. The Department of Defense is also cooperating with other Government agencies in the establishment of 12 Federal technical report centers throughout the United States.

In addition to these Defense-wide programs, the military departments took numerous steps to strengthen their own administration of research and development. The establishment of the Army Materiel Command is making possible more effective management of the research and development efforts formerly scattered among the various Technical Services. In the Navy, major attention was given to the organization of antisubmarine warfare activities, and a special director for research and development programs in this field was appointed. The Air Force found the recently established central management of its development programs by the Air Force Systems Command to be of substantial help. Considerable reductions in development as well as future supporting costs are expected to be obtained through joint projects for meeting the mission requirements of more than one military Service, as illustrated by the Navy-Air Force project for an advanced tactical fighter (TFX) and the joint Army-Navy-Air Force funding of the V/STOL aircraft.

Manpower

Final responsibility for translating policies into actions and objectives into accomplishments is vested in the 2,800,000 members of the military Services on active duty and the 1,200,000 civilian Defense employees. The maintenance of their welfare and morale continued to be a matter of major concern to the Department during fiscal year 1962. While numerous actions were taken or initiated to improve working conditions, further progress is necessary, for, in the long run, the effectiveness and efficiency with which our Defense programs are carried out will be determined by our ability to recruit and retain highly capable personnel.

A long-overdue increase in quarters allowances for military personnel—the first since 1952—was approved on July 10, 1962, averaging about 18 percent. The new legislation provides increases in accordance with the housing costs paid by civilians with comparable incomes. Differential payments by grade, previously applicable only to officers, were extended to enlisted men, and special reenlistment incentives were added. The new rates, effective January 1, 1963, were estimated to require annually about \$285 million in additional military personnel expenditures.

This legislation was based on the November 1961 recommendations of the Advisory Panel on Military Housing Policies and Practices, which also reported a need for an additional 72,000 family housing units over the next 5 years, primarily as a result of the rapid increase during recent years in the number of married military personnel. Special family housing offices were established in the military departments and the Office of the Secretary of Defense to manage this program. While the Congress did not accept the recommendation for a revolving fund for this purpose, a Family Housing Management account was approved and funds for the construction of 7,500 units were made available for fiscal year 1963. A higher level of construction was requested and will be required in future years. The availability of adequate housing is among the most important consideration influencing capable personnel to remain in military service.

In conjunction with a reevaluation of all Federal salary systems ordered by the President, a study of the military pay system was initiated in March 1962. This review gave special attention to the relationship between the total compensation of military personnel and that received by other Federal workers and by employees in private business. Its objective was to develop an equitable pay system that will continue to attract the high caliber of personnel required

to keep our armed forces effective and offer fair compensation regardless of changes in the cost of living. A major adjustment in pay scales is essential to halt the drain to private industry of skilled personnel, many of whom were trained at Government expense. The problems created by higher costs of living were recognized in the law approved on June 27, 1962, providing for an increase in the per diem allowance from \$12 to \$16.

Under existing programs, some progress was made in reducing the excessive number of middle-grade officers, commissioned during World War II, who have formed a "hump" in the officer grade distribution that limits their own promotion opportunities as well as those of officers junior to them. Efforts to encourage young reserve officers to stay on active duty after completing their obligated service were intensified. Newly enacted legislation authorizing increased separation payments for reserve officers, equal to those paid to regulars, is expected to provide additional incentives to reservists to remain in service for longer periods.

Among enlisted personnel, reenlistment rates for regulars continued to rise, although they remained unsatisfactory for "first termers." The over-all rate averaged 57.5 percent during fiscal year 1962 as compared to 53.1 percent during the preceding year. (See table 15.) A major factor in this improvement has been the availability of the two new senior enlisted grades, E-8 and E-9, and of proficiency pay primarily for personnel with "critical" operational skills. Additional promotions were made to the top enlisted grades and proficiency pay was expanded in accordance with approved schedules. P-1 ratings, carrying additional pay of \$30 per month, were increased from 191,774 to 193,139 during fiscal year 1962, while P-2 ratings, which provide \$60 more per month, rose from 14,236 to 34,255. (See table 13.)

While programs such as these have helped to improve the qualitative composition of the military Services, numerical requirements could not be met, as in the past, solely by voluntary recruitment. Inductions through the Selective Service System rose from about 60,000 in fiscal year 1961 to nearly 158,000 in fiscal year 1962, largely as a result of the need for the rapid expansion of our armed forces in the fall of 1961. (See table 14.) The extension of the draft authority, which expires on July 1, 1963, is essential to assure adequate manning in the years ahead. The same urgency applies to the continuation of the authority to issue selective calls for professionals in medicine and related fields and the special pay provisions for such personnel. A total of 1,261 persons were called under this authority during fiscal year 1962.

Troop information and education programs were submitted to extensive reviews during the past year by the Congress as well as by the Department of Defense. The aim of these studies has been to determine the best way to carry out the complex new training responsibilities in this field created by the protracted cold war, which requires that strictly military training be supplemented by instruction in non-military subjects, particularly those related to the nature of the conflict between totalitarianism and free societies. To meet these non-military requirements, policy controls were strengthened, commanders were advised to consider troop information as an integral part of training programs, and steps were taken to improve substantially the quality of educational materials and information services. Particularly helpful in this connection were the suggestions of a special Advisory Committee on Nonmilitary Instruction, which completed its work in July 1962.

To support the larger number of military personnel on active duty, civilian direct-hire employment in the Department of Defense had to be increased from 1,042,000 to nearly 1,070,000 during fiscal year 1962. (See table 18.) At the same time, however, new control procedures were established to make certain that essential programs are carried out with the minimum of personnel. The problem of attracting highly capable civilians to the Federal service and retaining them was also given major attention. In accordance with the recommendations of the President's Advisory Panel on Federal Salary Systems, a new salary policy was proposed establishing the principle of comparability between salaries paid by the Government and by private firms, providing for an annual review for updating pay scales, and making special provisions for strengthening career incentives in the higher grades. Legislation to this effect, introduced in February 1962, was approved after the close of the fiscal year. While the new law will facilitate the retention of highly capable personnel, it also places upon management the obligation to increase productivity and eliminate marginal activities. As a further step to improve personnel policies and working conditions, appropriate steps were taken by the Department to implement Executive Orders 10987 and 10988 of January 17, 1962, which strengthened the procedures for handling employee appeals from adverse administrative actions and regulated the relations between employee unions and management.

Policies and practices to assure equality of opportunity regardless of race, creed, color, or national origin were revised during the past year to place greater emphasis on positive measures that will promote the full utilization of all the manpower resources of our Nation. These actions were taken in compliance with Executive Order 10925 of March 6, 1961, which provided for nondiscrimination in Govern-

ment employment and the promotion of similar policies among business firms and labor unions engaged in Government work and established the President's Committee on Equal Employment Opportunity to supervise this effort. Defense regulations in this area were codified by a new directive on January 2, 1962, and special employment policy and contract compliance officers were appointed in the various agencies of the Department to advance the program. Members of minority groups, both military and civilian, were encouraged to take full advantage of the many available opportunities for further training and advancement. In cooperation with other departments and agencies concerned, positive steps were taken to alleviate the problems of off-base discrimination that make life more difficult for many members of the military Services and their dependents, particularly in connection with off-base housing, schooling for dependents, and public transportation. On June 24, 1962, the President, at the suggestion of the Department of Defense, appointed an advisory Committee on Equal Opportunity in the Armed Forces not only to evaluate the substantial progress made in the Defense establishment on this matter but also to recommend measures for further advances.

In keeping with the President's emphasis on maintaining the highest standards of conduct throughout the Government, as set forth in his message to the Congress on April 27, 1961, comprehensive directives prescribing such standards were issued to military and civilian personnel in the Department. To prevent conflicts between private interests and public duties, or even the appearance of such conflicts, the new regulations prohibited the acceptance of any favors, gratuities, or entertainment and directed officials to withdraw from handling any action that might affect their personal interests. In addition, all regular officers on the retired list are now required to file statements of employment to assure that Federal law and regulations are being observed, and legislation was passed after the close of the fiscal year prohibiting all such officers from selling military supplies and materials to the Defense establishment for a period of 3 years after their retirement. Special regulations for consultants and advisers were issued in March 1962, including a requirement for reporting their private employment and financial interests. The new standards of conduct will materially assist in maintaining public confidence in the integrity, impartiality, and devotion to duty of public officials.

Logistics

A major attack was made during fiscal year 1962 on the perennial problem of managing the vast logistics operations of the Department

of Defense with greater efficiency and economy. The many studies initiated in this area resulted in the establishment of a 5-year cost reduction program, which was submitted to the President on July 5, 1962. Under this program, the Department of Defense is committed to reduce within 5 years the annual costs of Defense procurement and logistics by at least \$3.0 billion.

The planned cost reductions are to be achieved primarily (1) by buying only what is needed to achieve balanced readiness, (2) by buying the materiel actually required at the lowest sound price, and (3) by reducing the costs of operating supply, transportation, communications, and maintenance activities. The over-all effort will involve not merely personnel of every component of the Department, but business firms and research institutions will also be asked to assist.

To provide a focal point for reviewing mutual problems of industry and the Department, a Defense Industry Advisory Council was established on May 23, 1962. The new council, under the chairmanship of the Deputy Secretary of Defense and including about 20 members with wide and varied business experience, will provide a regular channel for two-way communication, informing Defense contractors of the problems encountered or anticipated by the Department and alerting Defense management of the impact proposed procedures are likely to have on industry. Joint discussions are expected to lessen misunderstandings and reduce delays and costs in weapons procurement.

Additional help in improving the business management of the Department is being provided by the Logistics Management Institute, chartered as a nonprofit, fact-finding research organization in the fall of 1961. In view of the magnitude and complexity of military logistics, it appeared desirable to supplement the Department's work in this field with detailed, long-range studies, prepared without interruption by day-to-day operations. Guided by a group of trustees composed of experts from private industry and universities, the Institute develops and analyzes alternative courses of action designed to provide further refinements in requirements planning, simplification of design and specifications, increased competition in procurement, greater incentives for superior performance by contractors, and better management practices.

Numerous other improvements were made. Joint training courses for procurement personnel of all the military Services were established in July 1961 to foster the more uniform implementation of logistical programs. The February 1962 experiment of a Procurement Management Improvement Conference proved most successful, producing many important suggestions for further actions. The

Armed Services Board of Contract Appeals received a new charter in March 1962, providing that disputes be decided by the board itself rather than by separate panels representing the military departments. The new Defense Logistics Studies Information Exchange, established shortly after the close of the fiscal year, is expected to promote the wider use of available studies and prevent duplication in research activities.

In addition, the special assistance provided by the Department to communities directly affected by changes in Defense programs proved to be of considerable value during its first year of operation. By anticipating problems likely to arise and developing plans for lessening the economic impact resulting from the termination of major contracts or the closing of military bases, the office of Economic Adjustment was able to help many localities in finding other uses for the facilities closed and employment for displaced workers.

Buying Only What We Need

A major contribution to cost reduction will be achieved through the programs, initiated in fiscal year 1962, for the refinement of requirement calculations. In the summer of 1961, a new "material planning basis" was established, providing the military Services with updated guidance on force levels and mobilization assumptions. As available resources were measured against these standards, major imbalances in our inventories were revealed, and extensive studies were initiated to find the most economical and effective way for correcting the existing deficiencies.

All possible avenues were explored. In some cases, reductions could be achieved by the establishment of more realistic pipeline transit times. In others, an expanded production base could replace immediate procurement. Overly high estimates of "wear-out" rates and overly conservative safety factors were found to be responsible for the long supply of many spare parts. The postponement of the procurement of some new items appeared advisable, since their cost was not justified by substantially increased effectiveness. The prerequisite for a realistic determination of all actual requirements, however, was the development of a more precise and current information system on inventory levels.

While this approach yielded substantial results, it also became evident that, if the established goals were to be achieved, every significant cost item had to be individually reviewed and its procurement determined on the basis of its particular characteristics. The blanket application of standard consumption factors in the past had been the major cause for overbuying usual items and often understating the requirements for unusual items.

A careful scrutiny of existing specifications is producing additional savings through the elimination of unnecessary refinements. In many cases, operational experience has made invalid the specifications originally established to achieve maximum reliability and technical excellence. To discover opportunities for such savings, "value engineering" programs, carried out by both military and contractor personnel, have been established in each of the military departments. It is their mission to substitute cheaper materials or manufacturing processes and lower quality standards whenever it can be done without risk to the proper functioning of the equipment. Outmoded and duplicating specifications and standards, which have caused much confusion and needless effort on the part of contractors, are also being eliminated at an increasing rate. The preparation of technical manuals is being simplified by a program for reducing applicable instructions from 280 to about 40.

A major effort was also made to increase, in place of new procurement, the use of items in long supply, estimated to have an acquisition value of about \$13 billion. The more intensive screening of requirements against the centralized record of excess stocks increased the value of supplies transferred between the military Services by more than \$100 million during fiscal year 1962. Responsibility for improving this program as well as for the screening of excess Government inventories held by contractor is assigned to the Defense Supply Agency. The consolidation of disposal operations under the same agency is expected to provide more effective management and higher rates of return on the sale of excess stocks.

The annual savings to be achieved by 1967 as a result of the over-all effort to buy only what is actually needed was estimated in July 1962 at about \$850 million. Changes in the estimates for specific programs are inevitable as implementation reveals new opportunities for cost reduction as well as over-optimistic goals.

Buying at the Lowest Sound Price

A total of \$29.3 billion in prime contracts was awarded by the Department of Defense in fiscal year 1962, as compared to \$25.6 billion in the preceding year. It is imperative that the goods and services procured with these vast sums are bought at the lowest sound price. While many actions toward this objective were taken during the past year, special emphasis was placed on improving the Department's contracting procedures by increasing the use of competitive bidding and of cost reduction incentives in Defense contracts.

The importance of expanding the use of price competition is demonstrated by recent studies and past experience which often indicate

that a shift from noncompetitive to competitive procurement produces initial price reductions on the average of 25 percent. Unfortunately, however, the very nature of modern weapons, their complexity, the need for rapid development, and the acquisition of special skills and knowledge by the original contractor have combined to produce a steep rise in noncompetitive procurement. While this type of procurement will inevitably continue to play an important role, a reversal of the trend is both feasible and desirable. In support of this objective, a stringent review of noncompetitive contract awards was initiated. Special attention was given to identifying components of weapon systems that can be separately purchased on a competitive basis. Steps were taken to assure that technical data, drawings, and specifications are made available by the original contractor in time to permit competitive bids for subsequent procurement and for spare parts. Wider publicity was given to all proposed procurement actions above \$10,000. As a result of these and similar actions the proportion of competitive contracts rose from 32.9 percent in fiscal year 1961 to 35.6 percent in fiscal year 1962, bringing savings of about \$190 million. Higher goals have been set for the years ahead, with specific percentages assigned to each of the military departments and the Defense Supply Agency. The 1962 cost reduction program calls for annual savings of \$480 million by 1967.

Another major program for cutting procurement costs has been focused on reducing the number of cost-plus-fixed-fee contracts, which provide little or no incentive to contractors to hold down expenditures. Such contracts, by failing to distinguish between good and bad performance, have actually encouraged cost overruns in the development of many new weapons. As the result of numerous studies and extensive discussions with industry, the Armed Services Procurement Regulation was revised on March 15, 1962, establishing the firm fixed-price contract as the most preferred type, limiting the use of cost-plus-fixed-fee contracts to basic research and similar work involving many unknowns, and recommending cost-plus-incentive-fee contracts for the development and production of new weapon systems. The implementation of these policies is expected to lower final costs by at least 10 percent. A saving of \$100 million in fiscal year 1962 was reported to the President as a result of reducing cost-plus-fixed-fee contracts from the fiscal year 1961 percentage of 36.6 to 32.5. Annual savings by 1967 have been estimated at \$600 million. To reach this goal, however, much work remains to be done, particularly in the development of effective standards for measuring the contractor's performance and in the determination of fair incentive rates that will adequately reward efficiency and penalize waste.

The Department's program, announced early in 1961, to increase by 10 percent the proportion of prime contracts awarded to small business, was successfully carried out. Final figures for fiscal year 1962 showed an increase of 10 percent based on the 1960 figures and of 11.3 percent based on those for 1961, while the value of these contracts rose from \$3.4 billion in fiscal year 1960 to \$4.6 billion. The establishment of closer checks on the subcontracting procedures of prime contractors brought substantial additional gains, as payments by prime contractors to small business firms rose to \$4.0 billion, the largest amount ever reported.

As for assistance to areas of substantial unemployment, the prime contracts awarded to such localities in fiscal year 1962 totaled \$7.4 billion, of which \$106 million was awarded through the set-aside and tie-bid preference programs.

To minimize adverse economic impacts and to encourage areas that have not fully exploited their potential to plan better for Defense work, the Department briefed various industrial groups on the major regional shifts in contracts since 1953, caused in large part by rapid changes in military technology accompanied by ever-closer relationships between research and production. By stimulating the interest of local groups in Defense work, the Department hopes to broaden its industrial base and promote the fullest possible use of nationwide resources.

Reducing Operating Costs

The program to reduce operating costs has been extended to all phases of logistics management with special attention being given to achieving greater efficiency through the integration of supply activities and the standardization and simplification of mass paperwork.

The Defense Supply Agency (DSA), the establishment of which was discussed above, has been assigned a major role in this program. A detailed account of its activities is given in annex B to this report. By the end of fiscal year 1962, DSA was directing the procurement, storage, and wholesale distribution of 5 percent of the items in the Defense supply systems, excluding bulk petroleum—valued at \$1.7 billion and accounting for \$1.5 billion in sales. During fiscal year 1963, it will extend its control to 25 percent of the supply items with a value of \$2.2 billion and annual sales of over \$1.8 billion. This integration of common supply activities eliminates the previous diffusion of responsibility, facilitates the establishment of more efficient distribution channels and of uniform procedures, and contributes to the further reduction of inventories. In anticipation of personnel reductions of approximately 3,000, the budget estimates for DSA op-

erations for fiscal year 1963 were cut \$28 million by the Department of Defense. The elimination of unneeded stocks is expected to yield a reduction of \$232 million in DSA inventories.

In the communications area, further progress was made toward the development of a truly consolidated long-haul communications system that will lower operating costs and the requirement for new investments and, at the same time, improve the effectiveness of military communications. Savings from this program, assigned to the Defense Communications Agency (DCA), are expected to rise to \$25 million annually as the separate systems are interconnected, circuit mileage is reduced, and the fuller use of existing facilities becomes possible. A fiscal year 1962 saving of about \$8 million was achieved through the consolidation on January 1, 1962, of the responsibility of leasing all private line communications facilities, thus making the Department of Defense a single customer for these services.

At the same time, greater operating efficiency is being achieved through the simplification and standardization of paper work. On July 1, 1962, the MILSTRIP system became operational, substituting 1 standard requisitioning and issue procedure for the 16 different forms and systems previously used by the military Services. Another new system, MILSTAMP, will become effective in fiscal year 1963, canceling 81 different shipping forms. A thorough review of technical and other reporting requirements of contractors was also initiated and should result in a considerable reduction of such reports. The annual savings to be eventually realized through these paperwork simplification programs were estimated at more than \$75 million.

The transportation services of the Department continued to be administered during the fiscal year 1962 by three joint agencies—the Defense Traffic Management Service (DTMS), the Military Air Transport Service (MATS), and the Military Sea Transportation Service (MSTS), assigned respectively to the Defense Supply Agency, the Air Force, and the Navy. DTMS achieved considerable savings during the fiscal year largely through negotiations with carriers for lower rates, use of stopover transit privileges, and group movements of passengers. MATS and MSTS, in keeping with the intent of the Congress, expanded their use of commercial carriers for routine transportation; MATS increased its annual payments to private firms by 63 percent during the fiscal year and MSTS by 27 percent. While the review of our airlift and sealift capabilities resulted in new modernization programs, improvement in operational efficiency remained a major objective. The increased use of economy class for travel by Defense personnel, lower rates for international air travel, and less costly shipping of household goods contributed to the economies achieved.

An annual reduction of at least \$300 million in equipment maintenance costs has been established as the goal for 1967. This program, pioneered by the Air Force, is based on a continuous analysis of the rate of failures of individual parts to determine those that have to be checked and those that need not. It was discovered through this procedure that the frequent inspection of literally thousands of items in an aircraft could be eliminated, thus reducing inspection time, labor costs, and part consumption. Similar attacks on "overmaintenance" are being developed by the other military Services.

At the close of fiscal year 1962, the real property holdings of the Department of Defense were evaluated at \$35.4 billion, based on acquisition costs, and comprised 30.6 million acres. They included nearly 7,000 military installations and activities. While the size of these holdings alone demands a thorough continuous review, the rapid changes in military technology have made such a review doubly urgent.

In the spring of 1961 a special study group was established to survey 1,000 of the largest military installations in the light of current and anticipated needs as well as mobilization requirements. Subsequently, 400 smaller facilities were included in the review. As a result of this careful evaluation, the disposal of all or parts of 269 installations, involving land and improvements with an acquisition cost of \$1.7 billion, was directed. The total includes 28 industrial plants and some 217,000 acres. These actions, when completed, will produce annual savings of \$257 million and release 43,000 men for other military functions. The systematic review across departmental lines of the entire base structure will be continued to achieve the goal of \$442 million in annual savings through the closing or reduction of installations. Special attention was being given at the close of the fiscal year to the consolidation of military holdings in the larger metropolitan areas in the United States.

Improvements in the management of military real property holdings are scheduled to provide additional savings of more than \$60 million annually. The centralized control staff and special management fund for military housing, which were mentioned earlier, constitute one of the major steps toward greater efficiency in this area. The improved cost accounting system that is being introduced will provide the information for a thorough analysis of all expenditures. Other economies are expected through the introduction of new construction and maintenance techniques, lower utility rates, joint utilization of services, and more efficient management of power and heating plants. To promote the exchange of new ideas and information, a Real Property Maintenance Council was established in May 1962.

With additional data on all phases of our real property activities becoming available, new projects can be screened more realistically against existing assets and the established engineering and technical criteria. Proposals costing approximately \$800 million were eliminated from the submissions of the military departments before the 1963 construction program was transmitted to the Congress. The funds eventually approved for this program by the Congress totaled \$1.3 billion.

Collective Security

Our national military policy continued during fiscal year 1962 to be firmly based on the principle of collective defense. This policy is supported by mutual security agreements involving more than 40 nations through the North Atlantic Treaty Organization (NATO), the Southeast Asia Treaty Organization (SEATO), the Organization of the American States (OAS), the Australia-New Zealand-United States (ANZUS) pact, and the bilateral defense treaties with Japan, the Philippines, the Republic of China, and the Republic of Korea. In addition, the United States is closely associated with the Central Treaty Organization (CENTO), although not as a member.

Within this treaty framework, allied military staffs worked together during the year to strengthen the capability of the free nations to resist aggression. United States and local forces jointly guarded vulnerable frontiers and participated in many combined training exercises. Through the Military Assistance Program, the United States contributed its share to joint military projects and provided weapons, equipment, and training to meet urgent allied requirements. The security of the free world was increased wherever the fact of interdependence was recognized.

The extent to which the United States is committed to collective security is indicated by the deployment of our armed forces. On June 30, 1962, more than 1,100,000 men were either stationed outside the continental United States or assigned to afloat and mobile units of the Navy and Marine Corps. (See table 11.) The European NATO defenses are reinforced by 400,000 Americans, not including the sailors and marines manning the Sixth Fleet. Guarding the Far East in forward positions are such major combat units as the Eighth Army, the Seventh Fleet, and the 5th and 13th Air Force. All these and many small units throughout the world provide visible proof of the importance that our country attaches to its mutual defense responsibilities.

Joint action during the fall of 1961 in response to the Soviet challenge to Western rights in Berlin was a major factor in the maintenance of peace. On the military side, many of our allies strength-

ened NATO forces by raising the personnel strength of their units and improving logistical support. The defense expenditures of the European NATO states rose from \$14.6 billion in calendar year 1960 to \$15.6 billion in 1961. The measures taken by the United States and its allies improved the effectiveness of the NATO forces deployed in central Europe by more than 25 percent. A continuation of this trend toward greater strength in general purpose forces is needed to counter effectively the changing character of the Soviet threat in Europe.

On the other side of the world, special assistance was extended during the year to Vietnam in its undeclared war against Communist guerrillas. After careful examination of the local situation by Vietnamese and United States officials during the late summer of 1961, a new program was approved which, on the military side, called for increased deliveries of weapons and equipment and for a substantial expansion of United States personnel in training and advisory functions. To provide centralized direction in the field, a U.S. Military Assistance Command, Vietnam, was established in February 1962. The Vietnamese-United States effort is directed particularly toward increasing the land, sea, and air mobility of Vietnamese forces, providing better communications and intelligence, and improving counterinsurgency techniques and doctrine. As a result of these and many other joint projects, the effectiveness of the Vietnamese forces against the Communist intruders showed an appreciable gain by the end of fiscal year 1962.

Communist advances in neighboring Laos, despite the agreed-upon cease-fire, led to the temporary deployment of 5,000 Army, Marine Corps, and Air Force personnel to Thailand in May 1962. Sent at the request of the Thai Government, these units—together with air elements from Australia, New Zealand, and the United Kingdom—assisted the Thai armed forces in guarding the country's extensive frontier with Laos. Improving conditions permitted the gradual withdrawal of allied forces after the close of the fiscal year.

While the problems of Berlin and southeast Asia attracted major attention, a vital contribution to mutual security continued to be made by the Military Assistance Program. For this purpose \$1.4 billion was expended during fiscal year 1962, and dollar for dollar, no other expenditure yielded a greater return in developing trained forces deployed in position to counter Communist aggression. Only 21 percent of the 1962 program was apportioned to Europe—as compared to 38 percent in 1960—and these funds were provided primarily to discharge prior commitments and meet the U.S. portion of multilateral NATO projects. The share of the Far Eastern region increased to 46 percent, while the Near East received 22 percent and

the remaining 11 percent was allocated to Africa, Latin America, and nonregional programs.

Numerous studies were initiated to improve the administration of the Military Assistance Program. A substantial reduction in the undelivered portions of approved programs was made possible through the establishment of closer control over spare parts and other consumable-type items by the United States and our allies. Additional funds were recovered through the recomputation of requirements, price reductions, and the substitution of surplus materiel for new procurement. As a result, nearly \$241 million became available for the support of other projects. In April 1962, responsibilities for international logistics were realigned within the Department with a view toward improving the logistical readiness of United States as well as allied forces. The objectives of the new program are to insure balanced inventories, encourage greater standardization of weapons and equipment, promote the joint use of support facilities, and simplify logistical systems wherever possible.

The Department played an active role in the Government-wide effort to reduce the Nation's persistent unfavorable balance of payments. Gross defense expenditures entering international accounts have been averaging about \$3.0 billion a year and in fiscal year 1961 produced a net adverse balance of \$2.7 billion. The reduction of this adverse balance by at least \$1.0 billion was established as the Department's goal for the end of fiscal year 1963. To achieve this objective special programs were initiated not only to reduce United States oversea expenditures but also to increase receipts through additional procurement in the United States by our allies. The fiscal year 1962 effort brought the adverse balance down to \$2.0 billion, and a further reduction to \$1.6 billion appeared feasible for the next year.

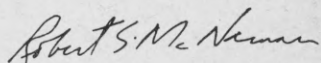
The reduction of United States oversea expenditures is being accomplished without diminishing combat effectiveness and hardships for military personnel and their dependents are being held to a minimum. It was estimated that a gross foreign exchange saving of \$50 million was achieved in fiscal year 1963 by encouraging servicemen to "Buy American" and to purchase United States savings bonds. Rising prices in foreign countries and increased oversea deployment, however, reduced this amount to a net saving of only \$10 million. While the limitations on the oversea travel of dependents, rescinded in February 1961, had to be temporarily reimposed in September to meet the logistical requirements of the Berlin buildup, these restrictions were again lifted in April 1962. Procurement contracts valued at \$58 million were returned to the United States during fiscal year 1962 in accordance with the established policy to substitute U.S. procurement whenever it is estimated that the cost of U.S. supplies would

not exceed the cost of foreign ones by more than 25 percent. In July 1962, this price differential was increased to 50 percent. Additional restrictions were placed on military assistance expenditures in foreign countries, particularly those for offshore procurement, and considerable savings are anticipated through the closing of surplus overseas bases, the consolidation of dispersed activities, and the joint utilization of depots. Defense-related expenditures abroad of other agencies, such as the Atomic Energy Commission, are also being reduced.

The greatest contribution, however, to this effort to reduce the adverse balance will have to come from recognition by our allies of their responsibility for offsetting our defense dollar outlays through the purchase of U.S. equipment and services. An agreement toward this end with the Federal Republic of Germany considerably reduced our adverse balance in this country. Similar arrangements with other allies were under discussion.

Assistance in the form of airlift, sealift, equipment, and supplies continued to be provided to the United Nations operations in the Congo. United States military aircraft transported 8,371 troops and 1,210 tons of cargo to the Congo during fiscal year 1962 and returned 5,562 troops with 287 tons of equipment to their native lands. Navy ships carried an additional 18,516 soldiers to and from the Congo. Supplies and equipment furnished by the United States included 5 C-119 and 10 C-47 aircraft, 22 helicopters, 480,000 rounds of ammunition, 535,000 rations, and over 1,000 tons of relief supplies. In addition, the armed forces provided assistance during the year to the victims of natural disasters and epidemics in Kenya, Chile, Tanganyika, Honduras, Afghanistan, and Iran.

In carrying out its varied international program, the Department of Defense worked closely with other Government agencies, particularly the Department of State. As the President remarked: "Diplomacy and defense are no longer distinct alternatives, one to be used when the other fails—both must complement each other." Formal and informal ties between State and Defense officials in Washington and in the field were considerably strengthened during the year. The program for the interchange of personnel between the two departments was continued. Additional unified commanders obtained the assistance of political advisers. These and many other actions contributed to making our armed forces a more effective instrument of national policy.



ROBERT S. McNAMARA,
Secretary of Defense.

ANNEX

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Annex A
ANNUAL REPORT
of the
RESERVE FORCES POLICY BOARD

July 1, 1961, to June 30, 1962

The Reserve Forces Policy Board acquired the following new members during the year ending June 30, 1962:

Brig. Gen. Carl Darnell, Jr., USA, vice, Maj. Gen. Charles G. Dodge, USA (October 1, 1961).

Rear Adm. Henry S. Monroe, USN, vice Brig. Gen. William T. Fairbourn, USMC (May 23, 1962); Col. Charles F. Duchain, USMCR, vice Brig. Gen. George E. Tomlinson, USMCR (February 27, 1962).

Maj. Gen. Russell L. Waldron, USAF, vice Maj. Gen. Robert E. L. Eaton, USAF (January 1, 1962); Brig. Gen. Joseph T. Benedict, USAFR, vice Brig. Gen. Kenneth Stiles, USAFR (April 30, 1962).

Vice Adm. Edwin J. Roland, USCG, replaced Vice Adm. James A. Hirshfield, USCG (February 20, 1962), and Rear Adm. James A. Alger, USCG, replaced Vice Adm. Edwin J. Roland, USCG (June 30, 1962).

This report on the status of the reserve programs of the Department of Defense, as required by law, also reflects the reserve components' mobilization potential and the effectiveness of their response in partial mobilization.

In its three sessions during the fiscal year 1962, the Reserve Forces Policy Board considered a number of major matters of policy affecting the reserve components of the armed Services. Principal among these matters were:

1. The buildup of our armed forces under provisions of Public Law 87-117.
2. Reserve readiness requirements and the related Army realignment of its reserve components force structure.
3. The "program package" basis of budgeting as it affects the reserve components.
4. The civil defense program under the Department of Defense with its implications for the reserve forces and individual reserves.

The first three of the foregoing items were the subjects of presentations and discussion at more than one Board meeting during this year.

In considering the callup of units and individuals from the reserve components of the Army, Navy, and Air Force under Public Law 87-117, the Board was concerned with two aspects of the matter. The first was to review the callup to identify possible improvements in preparation for any future similar occurrence. The second was to anticipate problems involved in the return of units and personnel to inactive duty status. The Board formulated advice to the Secretary of Defense on a number of particulars in both of these categories.

In addition, during each meeting the Board addressed itself to other matters of a policy nature and paid particular attention to various items of proposed legislation, both those originating within the Department of Defense and those referred to the Department by a committee of the Congress for comment. In many of these legislative cases the Board's advice was forwarded to the Secretary of Defense for consideration in the formulation of the Department position.

Personnel

In this period the active force buildup initiated a chain of events which significantly affected the reserve components.

At the President's request, the Congress (in Public Law 87-117, August 1, 1962) gave him authority until July 1, 1962, to call to active duty, for not more than 12 months, up to 250,000 Ready Reservists. He was also authorized to extend, for not more than 12 months, enlistments, appointments, active duty, active duty for training, obligated service, or other military status in any component of the armed forces that would expire before July 1, 1962. This law was implemented by Executive Order 10957 of August 10, 1961, under which, as of December 1, 1961, the Department of Defense had put 147,849 Ready Reservists on active duty. The breakdown was as follows:

Army:	Officers, 8,200; enlisted men, 105,054; total, 113,254.
	Units: 32nd Infantry Division, 49th Armored Division, 100th Training Division, and 438 other.
Navy:	Officers, 1,015; enlisted men, 7,005; total, 8,020.
	Units: 40 ASW ships and 18 air squadrons.
Air Force:	Officers, 3,449; enlisted men, 23,126; total, 26,575.
	Flying units: 11 wing and 36 squadrons.
	Nonflying units: 1 group, 4 squadrons, and 11 flights.
Total Personnel Called:	Officers, 12,664; enlisted men, 135,185; total 147,849.

The strength of reserve components in fiscal years 1961 and 1962 are indicated for each component in tables 23 and 24 of the appendix.

Operation of the 6-month active duty for training program of the Army was suspended from September 1961 to January 1, 1962, for enlisted personnel. The Army discontinued officer input into this program because all commissioned ROTC graduates were ordered to active duty for 2 years.

This program, now in its seventh year, has provided nearly half a million trained enlisted men to the Nation's Ready Reserve. However, during the recent partial mobilization a disturbing number of Army's 6-month servicemen were not qualified in the hard-core skills needed among filler personnel for mobilized reserve units. Numbers of participants in 6-month active duty training during fiscal year 1962 are shown by component in table 25.

In screening the Ready Reserves, 3,337,640 personnel records were reviewed during the year; 780,388 were released from a Ready status, with 294,460 transferred to the Standby or the Retired Reserve and 485,928 discharged. The number of record screenings covers many double screenings, including the semiannual screening of the Air Force Reserve.

Reserve Officers Personnel Act (ROPA)

The Reserve Officers Personnel Act, as amended (codified in titles 10 and 14, U.S. Code), especially since the "omnibus" amendments of 1960, has been adequate to deal with all reserve officers' promotion and attrition problems. The normal flow of promotions has been maintained despite "humps" created by fast promotions during World War II. Mandatory promotions have some detrimental

effect on Army and Air Force unit manning and operational readiness, where officers are promoted out of a unit for lack of vacancies in the higher grade. The result is often the loss to the unit of highly qualified and experienced officers who hold key positions which require many years of intensive training. Although no substantial revision of ROPA is anticipated at this time, there are areas of concern that require further study, such as, for example, a request from the Navy for an amendment to provide "below the zone" selection to flag rank for Naval Reserve officers so flag officers can have more years of service before retirement.

If the Officer Personnel Act is amended, as the Bolte Committee recommended, the effects on the Reserve Officers Personnel Act must be studied and additional legislation may be required to realign OPA and ROPA.

Army Reserve Components

Units called to extended active duty as part of the active Army were at a level of training that enabled them to accomplish their mission. Other units were authorized additional training to increase their readiness posture.

The manning levels of units vary with the degree of readiness required for their assigned mobilization missions. The Army National Guard NIKE battalions active in the air defense of the United States must be ready for immediate operation, and are manned at 84 percent of full TOE strength. Seven Army National Guard divisions were designated to the Strategic Army Forces (STRAF) and authorized 71 percent of full TOE manning.

The status of equipment improved a little but shortages of some items limited efficient training.

Army National Guard (ARNGUS)

Mobilization during the Berlin buildup of 1 infantry division, 1 armored division, and 142 combat and support units of the Army National Guard demonstrated their capability to perform their mobilization missions on schedule. The two divisions passed capability tests ahead of schedule and were assigned to the Strategic Army Corps (STRAC) on February 15, 1962.

On June 30, 1962, 69 NIKE-AJAX and 6 NIKE-HERCULES firing batteries were operational in 15 CONUS defense areas and 1 in Hawaii. Training was in progress for conversion of seven of the NIKE-AJAX batteries to HERCULES in fiscal year 1963.

Annual field training was conducted for all units in the 50 States and Puerto Rico with approximately 320,000 Guardsmen attending. A minimum of 48 inactive duty training assemblies (armory drills) were conducted during the year with at least 6 in extended periods on weekends. Attendance averaged 92.9 percent. Divisions and units selected for intensified training conducted about 2,000 extra unit assemblies before returning to normal training schedules in February 1962.

Army Service schools enrolled 7,673 Army National Guardsmen during this year, and 2,268 attended Army Area schools. The Army National Guard Special Officer Candidate School (OCS) at Fort Benning, Ga., and Fort Sill, Okla., enrolled 480. Army National Guard State OCS enrolled 3,478 officer candidates. These State-operated schools are the main source of second lieutenants for the Army National Guard.

The hard-core military personnel of the Army National Guard are the technicians, Guardsmen employed by the State in daily administration of Guard units, training personnel, equipment maintenance and repair, supply and accounting, and keeping NIKE missile sites operational 24 hours each day. On

June 30, 1962, 4,219 of the total 20,264 technicians were engaged in NIKE air defense.

To provide sufficient equipment to meet active Army requirements during the Berlin callup, it was necessary to withdraw over 10,500 items from the Army National Guard inventory. Some of the equipment remaining was reassigned to provide minimum essentials for training units not called to active duty. Although equipment was withdrawn, divisions and units were able to conduct annual field training through careful planning, maximum utilization of the items available, and pooling equipment from National Guard and Reserve sources. Some replacement items were returned to the Army National Guard during the year in "as is" condition. Equipment retained by units upon release from active duty early in fiscal year 1963 should improve the over-all inventory.

During this year 101 Army National Guard armory construction projects were put under contract, involving a total Federal contribution of \$11,687,061. In addition, nine nonarmory construction projects utilizing \$4,170,980 in Federal funds were placed under contract, and \$1,025,334 was obligated for minor construction and architectural engineering. The total of these Federal obligations was \$16,883,375.

Army Reserve (USAR)

One training division and 296 other units (including 6 aviation units) were mobilized during the Berlin callup and accomplished their assigned missions; 30,056 unit personnel and 38,827 other Reserves were thus ordered to active duty. The training of the remaining units consisted of annual active duty for training (ANACDUTRA) and 48 inactive duty training assemblies.

School training for USAR personnel is provided in Army Service schools, Army Area schools, USAR schools, and through extension courses. Reserves enrolled in any of these must have the same qualifications as active Army personnel. Most enrollment is in the USAR schools and in extension courses. The 115 USAR schools (5 outside CONUS) offer 18 career officer courses and Command and General Staff College courses; 290 MOS departments provide instruction in 18 branches for enlisted personnel. An experimental Army Intelligence USAR language training program initiated in 1960 is now established on a continuing basis. Graduates return to their USAR Combat Intelligence units for 4½ years of mandatory participation; 55 entered this training this year, and 100 spaces have been allocated for fiscal year 1963. In addition, 4,126 USAR students attended Army Service schools during fiscal year 1962.

Only a moderate gain was realized in the equipment status of the USAR, with about a 4 percent increase in the inventories of stock-funded equipment. It is estimated that on June 30, 1962, inventories amounted to 56 percent of training requirements.

Major items of equipment, such as tanks, self-propelled howitzers, armored personnel carriers, bridging and communication equipment, aircraft, trucks, and tractors, which are in national short supply, are particularly needed to bring USAR equipment to the desired readiness status. During the Berlin callup, equipment was withdrawn from the USAR to support the active Army.

The year's programing of USAR Centers included 34 projects providing facilities for 7,400 unit reservists and ancillary items omitted from 221 Reserve Center projects of previous years. The Congress authorized \$12,505,000 for these projects and acquisition of associated real estate, and \$14,381,000 was appropriated under these authorizations plus two authorizations from prior years.

Thirty-five Reserve Centers (including 11 joint projects with other reserve components) and 11 additions costing \$11,655,874 were placed under contract in fiscal year 1962. Forty-one centers (4 joint) and 25 additions were completed at a cost of \$12,164,966, and the 200-, 400-, 600-, and 1,000-man USAR Centers were redesigned.

The size of 100-man to 1,000-man Reserve Center sites has been standardized between 2.5 and 5 acres. During this period 12 sites and one option to purchase were acquired. Fifty-six of the 844 leases held at the beginning of the year were canceled as reserve units were ordered to active duty, and 55 more because Reserve Center construction was completed.

Naval Reserve

Naval Reserve readiness to accomplish its mission was enhanced in some respects by the partial mobilization during the Berlin crisis. The approximately 8,000 Naval Reservists with high-priority mobilization assignments in antisubmarine warfare received an additional 9-10 months' training on active duty. The active duty performance of these Naval Reservists attested to their individual readiness and to the effectiveness of their training program.

The over-all Naval Reserve officer readiness is good, but some junior officer shortages exist. By June 30, 1962, the over-all enlisted readiness had declined at an alarming and unprecedented rate. There are five bases for concern over this situation:

1. Deficiency in the training of enlisted men needed on M-Day.
2. Instability of the enlisted drill-pay program.
3. Failure to train sufficient petty officers to meet M-Day requirements.
4. Failure of the "2 x 6" program to replace "back-door" losses.
5. Low Ready Reserve reenlistment rate.

The cumulative effect of these factors is illustrated by the Navy's having only 124,000 in drill-pay status when the mobilization requirement was 161,000. The Navy is developing a new plan for reserve enlisted procurement and participation, to be executed if enlisted strength does not sufficiently increase by the end of the calendar year 1962.

During this period the Mine Warfare component was extended by the formation of two Reserve crews (Blue and Gold) for each ship, making two trained crews available for each minesweeper assigned to the Naval Reserve program. In addition, the Fourth Section to support the ASW ships upon their return from active duty with the fleet has been strengthened. The Fourth Section creates a larger crew potential for each ASW ship.

On November 30, 1961, a revised ordnance training equipment allowance providing more modern ordnance components was approved. Continuation of Operation CLEAN-SWEEP, begun in midfiscal year 1961, has reduced to 1,945 (from 10,003) the excess items of electronic equipment on hand. An exception was made to test equipment which could be used for training, regardless of age or condition. The most serious limitation on equipment is in the availability of installation funds provided by the Bureau of Ships. At the end of fiscal year 1962 the management bureau was able to determine what equipment was excess, implemented removal of excess, prescribed up-to-date allowances, and facilitated equipment deliveries to fill these allowances to about 86 percent complete. However, about 800 items of equipment are on hand waiting to be installed, and it will be about the end of fiscal year 1964 before these equipment items are installed and usable for training. Requirements for BUSHIPS non-

electronic training equipment are usually satisfied by shelf items, with occasional procurement.

The Naval Air Reserve had an inventory of 705 aircraft operational by June 30, 1962, a total to be increased to approximately 826 six months later.

The number of Naval Reserve surface training activities was maintained at 459 locations during fiscal year 1962. As of June 30, 1962, these were: 151 Naval Reserve training centers; 156 Naval Reserve and Marine Corps training centers; 15 Naval Reserve training facilities; and 137 Naval Reserve electronic facilities, varying in size from 3,100 to 35,000 square feet. Use of old buildings not designed as training centers causes much space to be wasted. Since 1951 the number of Naval Reserve training activities has been reduced from 721 to 459, a 38 percent reduction, with only a 6 percent concurrent reduction in drill-pay strength.

Despite consolidation and reduction, and the replacement, construction, and rehabilitation program, the Naval Reserve is faced with using 280 over-age and/or inadequate facilities. The fiscal year 1963 Naval Reserve military construction program before the Congress will provide six replacement training centers and six electronic facilities.

The Naval Air and Marine Air Reserve programs use 12 Naval Air Stations and 6 Naval Air Reserve Training units. A Marine Air Reserve Training Detachment is currently being supported by each Naval Air Station and by each Naval Air Reserve training unit, except NARTU Lakehurst. The fact that 9 of the 12 Naval Air Stations are now over-age or otherwise inadequate due to size, type of construction, or lack of facilities places these programs in an undesirable position. The current maintenance backlog of \$6,520,000 is so large that annual funds do not permit reducing it. One approach to the problem would be to improve and rehabilitate the existing facilities where feasible and replace those beyond the economical limit, thus providing facilities which could be properly maintained within the current budgetary limitations.

Marine Corps Reserve

Increased efforts were directed toward mobilization readiness during fiscal year 1962. Although the Marine Corps Reserve was not directly involved in the Berlin buildup, it became indirectly involved through the President's authorization in July which raised the active duty strength from 178,000 to 190,000 by the end of fiscal year 1962.

Qualified reservists were invited to apply for extended active duty and after careful selection, 1,261 applicants were accepted. Active duty extensions were granted to 370 reservists who were undergoing 6 months' active duty for training. Those two factors, coupled with a substantial rise in reenlistments and an acceleration of regular enlistments, enabled the Marine Corps to reach its goal 6 months ahead of schedule on December 30, 1961. Better than 10 percent of this increase in regular strength was provided by trained reservists, the majority being noncommissioned officers, who voluntarily stepped into line with their regular counterparts.

The most important factor occurring during fiscal year 1962 toward enhancing the mobilization readiness of the Marine Corps Reserve was the planning for the activation of the basic elements of the 4th Marine Division/Wing, within the Organized Reserve structure. Formation of the 4th Division/Wing, scheduled for fiscal year 1963, marks a significant departure from previous Marine Corps Reserve training and mobilization concepts. In the past, individuals were trained to fill vacancies within units of the regular establishment plus those

individuals necessary for the formation of additional units, whereas the new concept will permit the Marine Corps Reserve to respond either to a requirement for individuals or trained units. It should be noted that while the 4th Wing elements involve most of the Organized Aviation, the 4th Division elements comprise less than one-third of the Ground Organized Reserve. The remaining units are slated, primarily, for individual mobilization depending upon the requirements at the time.

Most ground units scheduled for mobilization as units require minimal training to enable them to meet early mobilization requirements because of the similarity between old organization and new designation. However, continual emphasis will be placed on the training of specialized units in order to develop the more technical skills. Some aviation units scheduled for unit-type mobilization will require additional training to meet requirements due to the formation of support and tactical units not previously trained in the Organized Aviation Reserve.

The ability of the Organized Marine Corps Reserve to integrate with the Fleet Marine Force units upon mobilization is attributed to three major factors: (1) The 6-month training program; (2) multiple drill periods; and (3) hosting at annual field training by regular Fleet Marine Force units.

The 6-month training program provides a solid base for both the Organized Ground and Air Reserve programs. Upon the completion of recruit training (12 weeks), ground reservists receive 4 weeks of infantry combat training and 5 weeks of advanced combat or specialist training, while aviation reservists receive 8 weeks of basic aviation training.

The status of equipment for ground forces continues to be satisfactory. Full allowances of unit equipment with the exception of rifles (SP), full-tracked ONTOS (106mm. M-50) are available for requisition when required to support training of additional personnel. Sufficient quantities of the rifle 7.62mm. M-14 were furnished all Marine Reserve units for familiarization. Improved accounting procedure, utilizing electronic machines, makes the semiannual submission of equipment reports to Headquarters, Marine Corps, very simple. For mobilization purposes, the exact quantities and location of major items can be determined in minutes.

The Marine Air Reserve units utilized aircraft furnished by the Naval Air Reserve. During fiscal year 1962 the last propeller attack aircraft was phased out giving the Marine Air Reserve an all-jet attack and fighter capability. These aircraft in most cases cannot be considered first-line; however, they can be taken into combat should the need arise. The C-119F (formerly R4Q-2) assault transport aircraft was introduced into the program during this period, ahead of schedule, permitting early training in this important category.

The lack of suitable helicopters continues to be a problem. Some training is accomplished by using Navy antisubmarine helicopters on a shared basis with Navy units. However, this is far from satisfactory in that it precludes working with troops. No solution to this problem appears probable until suitable helicopters are available.

As of June 30, 1962, the Marine Corps Reserve ground units occupied 221 facilities as opposed to 223 a year ago, the difference resulting from deactivation of two units. The vast majority of these facilities are jointly utilized. Some improvements and alterations were made to ground unit facilities, but there remains a 2-year backlog of both minor construction and major repairs. The 18 Marine Corps aviation units were located at 17 Naval Air Stations and 1 Air

National Guard station. One commercial lease was terminated during this period.

Air Reserve Forces

For several years the inspections and tests of Air National Guard and Air Force Reserve units have indicated a high degree of combat readiness and excellent reaction time. The performance of units mobilized during fiscal year 1962 is evidence that the Air Force program for its reserve forces is producing responsive forces able to perform their wartime missions with professional competence. Deficiencies apparent during the callup are being corrected, and the Air Force is continuing its further improvement in the stature of the Air National Guard and the Air Force Reserve.

Air National Guard (ANG)

The most outstanding achievement of the ANG during this period was the successful mobilization of certain units and the deployment of seven fighter squadrons, one tactical reconnaissance squadron, and a tactical control group to bases in France, Germany, and Spain approximately a month after their recall. More than 200 F-86H, F-84F, and RF-84F aircraft were flown across the Atlantic in the largest single overseas flight of jet fighter aircraft in history. The movement was accomplished without accident or incident, and shortly after arrival units were incorporated into the over-all operations of the U.S. Air Forces in Europe. They were assigned specific missions and targets, and became an integral part of the United States contribution to NATO military forces, participating in close support missions in Army exercises as well as perfecting techniques for strikes and air superiority roles.

The ANG fighter and reconnaissance units which remained in the United States intensified their training and joined the Tactical Air Command (TAC) in U.S. Strike Command exercises and joint exercises with the Army and Navy. The ANG heavy transport units, recently converted from various types of jet fighters to 4-engine C-97's, became part of the Military Air Transport Service (MATS) and assisted in accomplishing its global airlift missions.

ANG tactical reconnaissance squadrons not on active duty provided high altitude photography for missions directed by TAC. During fiscal year 1962, 26 ANG fighter interceptor squadrons participated in the air defense alert programs, and all but one provided air defense coverage on a 24-hour schedule. Four of the fixed aircraft control and warning squadrons also had a part in this program.

"Live Scheme" training was continued by the 15 ANG GEEIA (Ground Electronics Engineering Installation Agency) squadrons. By installing Air Force equipment on USAF projects, these units relieved the overloaded Air Force GEEIA units and sometimes eliminated the need for costly contract installations. The Air Force Logistics Command estimated that during the "live scheme" training of the ANG GEEIA units alone, over \$0.5 million's worth of work in cable construction and splicing and in installation of antennas, radios, radar, control tower facilities, navigational aids, etc., was accomplished.

The aircraft inventory was reduced by the mobilization to 1,263 on June 30, 1962, a decrease of 776 during the fiscal year. The aircraft problem is complicated by planned retention of a number of F-84Fs in the active Air Force when the units to which they have been assigned are returned to inactive duty status. It is expected that sufficient aircraft will be available in affected units to maintain minimum aircrew proficiency (not operational readiness) until

procurement of new aircraft or fallout from the active Air Force meets reserve forces requirements.

Plans were developed to correct some deficiencies in ANG equipping highlighted by the mobilization. The Unit Requirement List and peculiar ANG equipment allowance documents have been dropped, and the equipping system for the ANG units has been standardized with the Air Force system using the UAL system and standard USAF allowance documents. This will provide an accurate measure of the equipment of ANG units in training status as compared with requirements for full operational status.

Funds available to the ANG for construction of facilities during the year totaled \$28.2 million. Contracts were awarded and funds obligated in the amount of \$19.6 million with another \$5.4 million's worth of projects advertised for bids, leaving only one project in the program for future advertising and award of contract.

Corrective actions to increase drill-pay space limitations which resulted in manning deficiencies in the units called up in the Berlin crisis are under study.

Air Force Reserve (AFR)

Air Force Reserve efforts during the Berlin callup were very impressive and commendable despite the problems engendered by the speed of the recall. The five troop carrier squadrons were called to active duty in the early stages of transition from C-119's to 4-engine C-124's. Within 3 months, they had achieved a satisfactory operational capability and were supporting both Air Force and Army airlift requirements. Troop carrier crews, on inactive duty status, have a continuing role in the accomplishment of day-to-day Air Force airlift missions. In a program known as CON TAC, 10 AFR C-119's and C-123's are available to TAC to support its airlift requirements. If TAC does not need all planes on alert, they are used by the Continental Air Command (CONAC) to support Recovery units or other parts of the reserve program. Also 10 C-119's and their crews are kept on daily alert at Fort Campbell, Ky., Pope AFB, N.C., and Fort Benning, Ga., to support airborne training for paratroopers.

The air rescue squadrons also take part in day-to-day Air Force activities. Ten aircrews from the five rescue squadrons volunteered for 60 days of active duty to support the deployment of ANG units to Europe. Their HU-16's (formerly SA-16) operated from Prestwick, Scotland; Goose Bay, Labrador; and Eglin AFB, Fla. They also provided emergency search and rescue support throughout the year on an on-call basis. The air terminal squadrons assisted MATS in the operation of its major terminals during summer field training.

The Air Force Reserve Recovery Program is considered by the Air Force to be operating with reduced manning because of drill-pay ceilings, budget limitations, and fund allocation. Recovery units are to support dispersal or aircraft recovery operations at civilian airfields in the event of enemy attack.

The Air Reserve components have been able to surmount the normal long training times required to train disaster control planners and trainers by the development of a special training course. This consists of a home study effort followed by a 15-day formal school course and serves in lieu of the 21-week formal school course previously required. This system is used for providing this specialty to all Air Reserve Forces Units with priority given to the Recovery Units over the past 9 months.

The aircraft inventory for the AFR on June 30, 1962, was 680, a decrease of 88. Current plans call for a number of C-124 aircraft being retained in the active

Air Force. However, it is expected that sufficient aircraft will be available in affected units to maintain aircrew proficiency.

The AFR flying squadrons are well supplied with tools and equipment necessary to maintain aircraft in operating condition. Active Air Force tables are used in providing equipment. The AFR flying units have about 90 percent of authorized equipment, with wing support and nonflying units being about 70 percent equipped.

AFR construction is limited to flying locations. Recovery units occupy commercially leased or Government-owned quarters at or near the civil airports to which they are assigned, and nonflying units are located either with flying units or on an active Air Force installation.

The AFR had \$7.9 million available for construction during fiscal year 1962 and obligated \$3.9 million. Actions in connection with the Berlin buildup caused slippage in the programmed conversion of AFR units to C-124 aircraft which, in turn, caused temporary deferral in construction starts of certain projects to support these heavier aircraft. Many facility projects for the C-119 and C-123 units have been completed from prior-year funds, and minimum funding will be required for round-out items, such as wash racks, additional storage, and administrative facilities, and to replace World War II facilities at several installations.

Coast Guard Reserve

As of the end of fiscal year 1962 Coast Guard Reserve readiness was not entirely satisfactory. The steadily decreasing Ready Reserve, the small organized reserve strength compared to mobilization requirements, and the lack of adequate equipment and vessels for training purposes are contributing factors against operating a reserve capable of fulfilling mobilization missions. The Ready Reserve strength as of June 30, 1962, was about 85 percent of the officers and 70 percent of the enlisted men needed.

Emphasis on operational-type training in Ready Reserve units, and close alignment of the training programs of the specialty units to mobilization requirements, insure that Coast Guard reservists are trained in specialties vitally needed upon mobilization. A recently implemented mobilization assignment system insures that every reservist is preassigned and preordered to the highest priority mobilization billet which he can effectively fill. Within the numerical limitations cited above, the Coast Guard reservists are now better prepared for and have the capability of reporting hours sooner to their mobilization assignments than ever before.

To decrease port vulnerability, strong emphasis has been placed on operational port security training units. One hundred and eleven of these have been designated operational since fiscal year 1961. They continue to improve the effectiveness of this reserve component to respond immediately in the event of mobilization for the protection of port areas.

The Coast Guard Reserve Training Center, at Yorktown, Va., trains and graduates Reserve officers. In addition, a large variety of courses are taught during summer ANACDUTRA periods, and many officer specialized courses and enlisted technical courses are conducted throughout the year.

There is a general shortage of equipment for realistic training of operational port security units and vessels for training of vessel augmentation personnel. An orderly acquisition program for adequate equipment and vessels has been planned and will be carried out as funds become available. In the event of mobilization, operating equipment is to be provided to individuals and units by the Regular Coast Guard.

Due to its relatively small size, the Coast Guard Reserve utilizes training facilities of other armed forces (primarily Navy) for drills or facilities of Coast Guard operating units. In some cases Government or commercial space is leased.

Reserve Officers' Training Corps (ROTC)

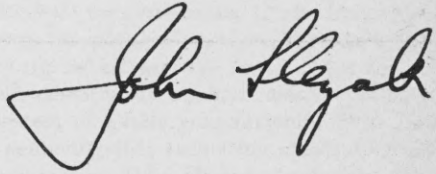
During the past 5 years the ROTC programs have produced, as an average, approximately 18,500 new junior grade officers a year for the military Services.

The 9-member Advisory Panel on ROTC Affairs, operating under the Reserve Forces Policy Board, continually examines and studies the Reserve Officers' Training Corps programs and makes recommendations on policy and legislation affecting the ROTC.

New members of the panel appointed by the Chairman of the Reserve Forces Policy Board during this year are: Dr. Benjamin E. Lippincott, professor of political science at the University of Minnesota; Dr. Herbert E. Longenecker, president of Tulane University; and Dr. Edgar F. Shannon, Jr., president of the University of Virginia.

This year the panel met twice to reexamine the ROTC programs and to determine what changes appear to be necessary to meet present trends and future requirements. The results of the panel's deliberations were reported by its chairman, Dr. George C. S. Benson, president of Claremont Men's College, to the Reserve Forces Policy Board, which endorsed the report to the Secretary of Defense.

These recommendations dealt principally with a substantial number of specific provisions in the then-current draft of proposed legislation pertaining to the ROTC under study within the Department of Defense.

A handwritten signature in dark ink, reading "John Slezak". The signature is fluid and cursive, with a large, stylized initial "J" and a long, sweeping underline that extends under the rest of the name.

JOHN SLEZAK,

Chairman, Reserve Forces Policy Board.

Annex B
ANNUAL REPORT
of the
DEFENSE SUPPLY AGENCY
October 1, 1961, to June 30, 1962

Introduction

The Secretary of Defense on August 31, 1961, announced his intention to establish the Defense Supply Agency (DSA) and on September 12 appointed Lt. Gen. Andrew T. McNamara as first Director, with instructions to make DSA operational as soon as possible. General McNamara returned post-haste from Korea and assumed control of a small planning staff on October 1961. DSA became operational only 3 months later, on January 1, 1962.

In the 6 months since it has become operational, the Defense Supply Agency has taken a firm hold on the task assigned to it. This task, simply stated, is to act as the wholesale supplier of selected common items and related services for the entire Department of Defense (DOD). In performing it, the first objective is to provide effective logistic support to the military Services, in peace and war; the second, to provide that support at the lowest possible cost.

The past fiscal year has been one of transition from single managerships within the military departments to a system of single control under DSA. Much of the accomplishment has been in achieving this transition smoothly, without loss of supply effectiveness. At the same time, DSA has been laying the foundations for more efficient supply to its customers at less cost to the taxpayers in years to come. These accomplishments have been possible only through the wholehearted cooperation of the military Services and the Office of the Secretary of Defense.

Concept

The Defense Supply Agency is the product of a long evolution of the system for handling common supplies and services within the Department of Defense. The announced purpose of the Secretary of Defense in establishing DSA was to bring the principal elements of this system under consolidated management as part of a major action to increase supply efficiency.

By its charter, issued by the Secretary of Defense on November 6, 1961, DSA was assigned responsibility for providing the most effective and economical support of common supplies and related services to the military departments and other DOD components, and charged with the administration and supervision of the Defense Coordinated Procurement Program, the Defense Standardization Program, the Defense Materiel Utilization Program, the Defense Surplus Personal Property Disposal Program, and the Federal Catalog Program.

To carry out these responsibilities, DSA was given control of the following organizations:

—The eight existing commodity single manager agencies: Subsistence, clothing and textiles, general supplies, automotive supplies, and construction supplies previously assigned to the Army, and petroleum, medical supplies, and industrial supplies previously assigned to the Navy.

—The Military Traffic Management Agency, previously assigned to the Army.

—The Armed Forces Supply Support Center charged, under the supervision of the Secretary of Defense, with administration of the cataloging, standardization, and materiel utilization programs, screening of excess property, and conduct of studies of the supply systems of the military Services concerned with common items with a view to optimum integration in the interest of increased military effectiveness and economy. (The latter function was not transferred to DSA, except as the Secretary of Defense might direct DSA to make such studies.)

—Thirty-four consolidated surplus sales offices in various parts of the country operating under the three military departments.

—The Armed Forces Bidders Registration and Information Office operating under the Air Force in San Antonio, Tex.

Moreover, DSA was to establish, direct, and control a new integrated agency for assigned electronics materiel and conduct analyses as directed by the Secretary of Defense of other areas in which integrated management techniques might be applied.

Generally, for the items it manages, DSA will be responsible for that part of the supply line closest to the producer and the military departments for that part closest to the operating forces. Research and development, oversea supply systems, retail distribution of supplies in the continental United States, and, under DOD criteria, the selection of items to be placed under integrated management remain the responsibilities of the military Services. DSA does have an advisory role in research and development for commodities over which it exercises control and in resolution of conflicts in item coding. The Services retain responsibility for determination of their requirements and the computation of special program and mobilization requirements for items assigned to DSA. DSA is assigned responsibility for the computation of wholesale replenishment requirements for items under its management. DSA is also charged with review of mobilization and special program requirements received from the military Services for these items, and computation of these requirements when authorized by the Secretary of the military department concerned. DSA is not authorized to engage in operations outside the United States except as specifically approved by the Secretary of Defense.

DSA is separately organized within the Department of Defense, outside the military departments and the Office of the Secretary of Defense, and its Director is responsible directly to the Secretary of Defense. The Defense Supply Council advises and assists the Secretary of Defense in his direction and control of DSA.

Planning and Assumption of Control

Planning for the assumption of its operational responsibilities by DSA was accomplished during a 3-month planning period, beginning on October 1, 1961, by a planning staff composed of military and civilian personnel on loan from the

military departments and the Office of the Secretary of Defense and by personnel of the Armed Forces Supply Support Center, which passed to the control of the Director of DSA on October 1, 1961. The planning period was marked by the full cooperation and generous support of the military departments.

On January 1, 1962, DSA assumed control of all the other organizations assigned under its charter, save the Industrial and Automotive Centers, where further adjustments were required. The former was placed under the Director's command on April 1, 1962, and the latter on July 1. Meanwhile, plans for the new Electronics Center were developed by a special inter-Service group and that center was also activated on July 1. Thus, by the end of the first 6 months of operation, the structure of field commands consisted of nine Defense Supply Centers, the Defense Traffic Management Service (formerly Military Traffic Management Agency), and the Defense Logistics Service Center (as the Armed Forces Supply Center was renamed).

Meanwhile, certain additional related activities and functions were assigned. In February 1962, DSA was made responsible for management of Civil Defense stockpiles, other than medical, and for procurement of supplies for the Fall-out Shelter Program, other than radiation detection and monitoring equipment. On April 20, the Electronic Production Resources Agency was disestablished and responsibility for advising on electronics production capabilities assigned to DSA. Effective May 1, the Army and Marine Corps clothing factories in Philadelphia were transferred to the Defense Clothing and Textile Supply Center.

In assuming control, DSA's task was not solely one of consolidating management of existing activities but also of planning the future development of several agencies that had not yet assumed the full responsibilities of single management of their areas. Of the Supply Centers, only the four older ones (Subsistence, Clothing and Textile, Medical, and Petroleum) were fully operational on January 1, 1962. Of these, the Petroleum Center was in process of assuming a new function of ownership and consolidated management of packaged petroleum stocks. While the General Supply Center was operational in most respects, the Construction and Industrial Supply Centers were still in process of taking control of the items assigned them for management. The Automotive and Electronics Centers were in the planning stages.

The industrial, construction, automotive, and electronics supply categories all involve items far more technical in character and more closely related to Service-managed end items than those contained in the original single manager assignments.

Phased schedules were drawn up for the progressive assumption of management responsibilities by the centers concerned with these commodities. The Petroleum Center assumed ownership of packaged petroleum stocks on October 1, 1962. The Defense Construction Supply Center will become fully operational on November 1, 1962, and the Industrial Center on June 1, 1963. The Automotive Supply Center began operations by assuming central management of its first commodity increment on October 1, 1962, and will become fully operational on July 1, 1963. The newly established Electronics Center will assume control of assigned items in 15 increments beginning on November 15, 1962, and become fully operational on September 1, 1964.

Figure 1 provides some measure of the status of the Supply Centers at the end of fiscal year 1962 and planned progress in fiscal year 1963:

ITEMS MANAGED AND INVENTORIES SUPPLY CENTERS

Commodity center	Items centrally managed (in thousands)		Inventory value (millions of dollars)	
	June 30, 1962 (actual)	June 30, 1963 (projected)	June 30, 1962 (actual)	June 30, 1963 (projected)
Defense Automotive Supply Center-----		¹ 84. 0	-----	94. 7
Defense Clothing and Textile Supply Center-----	24. 6	25. 0	1, 145. 4	993. 1
Defense Construction Supply Center-----	12. 0	80. 0	7. 6	102. 9
Defense Electronics Supply Center-----		² 429. 0	-----	402. 4
Defense General Supply Center-----	48. 1	48. 0	124. 5	110. 2
Defense Industrial Supply Center-----	115. 6	364. 0	132. 1	213. 6
Defense Medical Supply Center-----	8. 5	9. 0	221. 0	174. 5
Defense Petroleum Supply Center (Pack- aged Only)-----		1. 0	-----	7. 7
Defense Subsistence Supply Center-----	0. 8	1. 0	116. 0	102. 4
Total-----	209. 6	1, 041. 0	1, 746. 6	2, 201. 5

¹ DASC expected to centrally manage 149,000 items when fully operational, July 1, 1963.

² DESC expected to centrally manage 618,000 items when fully operational, September 1, 1964.

Figure 1.

The assumption of control by DSA of single manager operating agencies formerly lodged in the military departments has required careful adjustments of functions, responsibilities, and control of installations in each case. Certain installations at which DSA became the predominant user were, by permit from the owning department, transferred to DSA for operational control. In other instances, DSA activities became tenants at installations under control of the military departments. Pure service functions formerly performed by the centers have been separated, but as far as possible, in order to avoid duplication, they have been co-located to permit performance on an integrated basis under inter-Service support agreements. The most fundamental adjustments of this sort were required in the cases of the Automotive and Construction Centers, where original Army plans provided for integrating single manager agencies into existing Army organizations.

The responsibilities of the former Armed Forces Supply Support Center, now the Defense Logistics Services Center (DLSC), for planning materiel inter-servicing, standardization, and conducting analyses of supply systems (as directed by the Secretary of Defense) have been assumed by Headquarters, DSA. The DLSC retains responsibility for administration of the Federal Catalog System and for detailed management of the materiel utilization program and has been assigned the additional responsibility for operational management of the surplus personal property disposal program. DSA is carrying out a physical consolidation of the Bidders Registration and Information Office in San Antonio, Tex., with the older functional divisions remaining in DLSC by moving the entire organization to a new location in Battle Creek, Mich.

Organization

The organization of DSA is shown in figure 2. This organization has been shaped on the principle that the broadest feasible operating authority should be vested in field commanders subject to firm central direction and control of the organization as a whole. While the Director has assigned the center commanders maximum responsibility within their respective spheres and expects to look to them for prompt decisions and results, he will run DSA as one agency, not as a loose federation of semiautonomous activities.

The headquarters organization provides a mission staff along functional lines composed of an Assistant Director for Plans, Programs, and Systems, three Executive Directors, and a specialist and support staff. The Executive Directorates are assigned responsibility for supervision of performance of all missions within their designated areas of interest. The Assistant Director, Plans, Programs, and Systems exercises supervision over all other staff elements in developing broad objectives and policy, designing systems, and establishing and reviewing programs for their fulfillment.

Cameron Station, Alexandria, Va., is the permanent site of DSA Headquarters. Warehouse space at this site is currently being converted to office space and the consolidation of the headquarters, presently scattered in various locations in the Washington area, will be completed during fiscal year 1963.

Budget and Funding

In accordance with its charter, DSA uses appropriated funds to pay operating costs, except military personnel costs, and a stock fund to finance inventories. Since no appropriations were made to DSA for fiscal year 1962, funds identified in Service budgets covering DSA functions were transferred—\$36.8 million from the Army, \$6 million from the Navy, and \$4 million from the Air Force. Actual obligations in the January–July period amounted to about \$53.5 million, including additional funds received as reimbursements. The breakdown of operating costs by activity was as follows:

OPERATING COSTS

January–July 1962

(Thousands of Dollars of O&M Obligations)

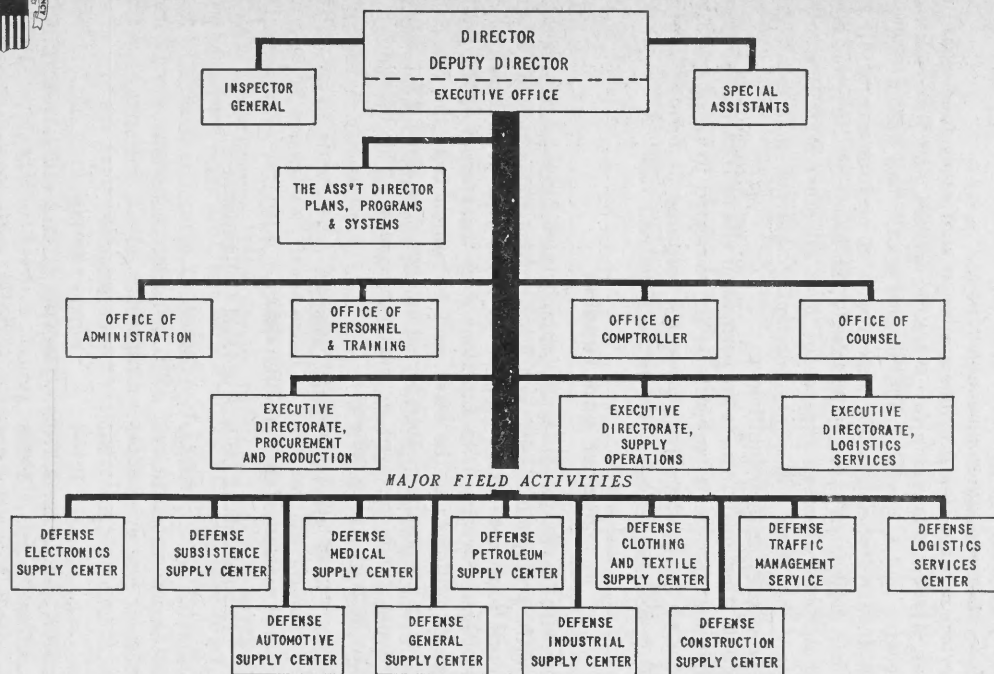
DASC ¹ -----	-----	DSSC -----	7, 228
DCTSC -----	10, 178	DLSC -----	6, 104
DCSC -----	6, 497	DTMS -----	4, 796
DESC -----	937	Administrative	
DGSC -----	9, 534	Support Group -----	49
DISC -----	2, 786	Hq, DSA -----	2, 785
DMSC -----	1, 926		
DPSC -----	684	Total -----	53, 524

¹ DSA assumed command of DASC on July 1, 1962.

Budget estimates for fiscal year 1963 were submitted to the Congress under separate new Defense agencies appropriation titles. The initial DSA estimate for operating costs of \$177.7 million was some \$27.7 million less than estimates submitted independently by the military departments covering performance of the same functions. Since Congress cut \$2.7 million from this operating budget,



DEFENSE SUPPLY AGENCY



APPROVED:

A. T. McNamara

A. T. McNAMARA
Lieutenant General, USA
Director
15 August 1962

Figure 2.

the cost reductions directly attributable to the establishment of DSA may well be as high as \$30.4 million.

DSA is a single procurement and stocking agency with a multiple cost distribution to the appropriations of the military departments, which have to be charged with the cost of material DSA issues. The essential mechanism for this purpose is the Defense Stock Fund, established on November 6, 1961. Initial working capital was created by cash transfer of \$45 million from the Army Stock Fund and \$5 million from the Navy Stock Fund. Meanwhile, inventories of the former single managers are being progressively capitalized in the Defense Stock Fund. Data on stock fund operations during the last 6 months of fiscal year 1962 and projected for fiscal year 1963 are shown in figure 3.

STOCK FUND DATA

(Millions of Dollars)

Center	January 1-June 30, 1962 (actual)			Fiscal year 1963 (projected)			Total inv. capital.
	Obligations	Sales	Inventory capital- ization	Obligations	Sales	Inventory capital- ization	
DASC ¹ -----				5. 8	19. 3	113. 0	113. 0
DCTSC-----	123. 7	173. 0	1, 113. 6	278. 2	392. 4	-----	1, 113. 6
DCSC ² (2 Mo.)-----	0. 2	0. 5	8. 0	73. 6	71. 0	132. 9	140. 9
DESC ³ -----				80. 0	100. 0	461. 5	461. 5
DGSC-----	65. 7	67. 0	118. 7	120. 0	135. 0	-----	118. 7
DISC ⁴ (3 Mo.)-----	21. 2	25. 0	154. 1	108. 0	124. 0	121. 0	275. 1
DMSC-----	76. 7	49. 2	237. 4	91. 5	117. 0	-----	237. 4
DPSC ⁵ (Packaged POL Only)-----				17. 2	17. 2	11. 0	11. 0
DSSC-----	413. 4	424. 9	122. 0	826. 0	856. 8	-----	122. 0
Total-----	700. 9	739. 6	1, 753. 8	1, 600. 3	1, 832. 7	839. 4	⁶ 2, 593. 2

¹ DSA Command July 1, 1962; initial capitalization, October 1, 1962.

² DSA Command January 1, 1962; initial capitalization, May 1, 1962.

³ DSA Command July 1, 1962; initial capitalization, November 15, 1962.

⁴ DSA Command April 1, 1962; initial capitalization, April 1, 1962.

⁵ DSA Command January 1, 1962; initial capitalization of packaged POL stock, October 1, 1962. DPSC also handles contract awards for bulk petroleum totaling approximately \$1.2 billion annually carried in military department accounts.

⁶ Difference between projected inventory value shown in earlier table (\$2,201.5 million) and capitalization figure explained by anticipated gross inventory reduction of \$391.7 million during first 18 months of DSA operations by sales of materiel without replacement (\$271.1 million), free issues to MAP and HEW (\$66.5 million), excess materiel purged from inventory (\$38.9 million), and other miscellaneous inventory reductions (\$15.2 million).

Figure 3.

As figure 3 shows, net obligations for procurement in fiscal year 1963 are estimated at \$1,600.3 and sales at \$1,832.7 million, representing a prospective economy through inventory drawdown in excess of the goal of \$229 million established when DSA was founded.

Personnel

The over-all DSA staffing plan provides for a total of around 23,600 personnel in headquarters and field activities by the end of fiscal year 1963, of whom about 95 percent will be civilian employees. This represents a reduction of about 3,700 in the estimates made independently by the military Services of personnel requirements to carry out the same functions, and is the principal factor in the prospective annual reduction in operating costs. Summary statistics relating to the end fiscal year 1962 and prospective fiscal year 1963 staffing of various DSA activities are shown in figure 4.

STATUS OF DSA PERSONNEL

Organization	June 30, 1962 (actual on board)			June 30, 1963 (projected)		
	Total	Civilian	Military	Total	Civilian	Military
DASC ¹ -----				964	940	24
DCTSC-----	4, 606	4, 496	110	4, 686	4, 591	95
DCSC-----	1, 860	1, 830	30	2, 663	2, 630	33
DESC-----	433	² 415	18	4, 534	4, 432	102
DGSC-----	2, 878	2, 753	125	2, 840	2, 740	100
DISC-----	1, 532	1, 491	41	2, 253	2, 200	53
DMSC-----	487	451	36	487	450	37
DPSC-----	188	168	20	230	208	22
DSSC-----	1, 665	1, 535	130	1, 714	1, 585	129
DLSC-----	1, 228	1, 210	18	1, 264	1, 257	7
DTMS-----	1, 006	928	78	1, 012	929	83
Administrative Support Center (Field)-----	80	59	21	192	141	51
Industrial Mobilization (Field)-----				77	77	-----
Hq DSA-----	535	435	100	737	628	109
Total-----	16, 498	15, 771	727	23, 653	22, 808	845

¹ DSA assumed control of DASC July 1, 1962; 123 civilians and 12 military personnel on board at this time.

² An additional 4,035 civilian personnel at DESC on DSA rolls but still paid from Air Force funds and charged against Air Force manpower spaces.

Figure 4.

In staffing its headquarters and field activities, DSA has either taken over existing personnel in place or secured them largely by transfer from activities within the military departments performing similar functions. A primary concern has been to see that while DSA is staffed on the leanest and most economical basis possible, it secures the most competent military and civilian personnel. At the same time, in the phasedown of civilian spaces in the military departments and the corresponding buildup of DSA, transfer rights are being universally honored.

The military staffs of the departmental single manager agencies consisted predominantly of members of the managing Service. DSA has developed a plan that will significantly improve the balance in joint staffing over a 3-year period. Meanwhile, such a balance is being established in the staffing of DSA Head-

quarters. DSA is also taking measures, in conjunction with the military departments, to identify reserve personnel with mobilization designations to activities assigned DSA and to develop a joint reserve officer mobilization designee program with a proper balance among the Services.

Commodity Area Studies

In accordance with instructions from the Secretary of Defense, DSA, in conjunction with the military Services, is currently conducting studies of three additional commodity areas—industrial production equipment, chemical supplies, and aeronautical spares—to determine to what extent integrated management concepts may be advantageously applied. The industrial production equipment study involves an inventory of some 400,000 items of machine tooling and other equipment with an acquisition cost of around \$4 billion, the chemical study, 13 FSC classes containing 10,000 items with present wholesale inventories valued at about \$95 million, and the aeronautical spares area, about 750,000 items of supply with inventories in 21 FSC classes valued at roughly \$12 billion. The industrial production equipment and chemical supply studies have been completed and the results are under consideration by the Secretary of Defense and the military departments. The aeronautical spares study is presently confined to a pilot study aimed at defining more precisely the range of items and areas to be studied in depth.

Improvements Through Consolidated Management

DSA is striving to make the most of the unparalleled opportunity to achieve greater efficiency and economy in supply operations afforded by the consolidation of the single managers under its control. One advantage is already apparent. Formerly, heads of the single manager operating agencies reported through multiple departmental chains of command and management levels. At least one and, in some cases, as many as three levels of review have been eliminated by the establishment of a single command headquarters responsible to the Secretary of Defense.

Actions taken and studies under way to reap the benefits of consolidated management in other ways are too numerous to mention individually in all cases. DSA has drawn up a master development plan, covering the priority projects that need to be accomplished in order to enable it to assume its assigned responsibilities. These projects have been individually assigned to staff and command elements, or to teams, and a perpetual check is maintained on their progress.

A headquarters task force is developing a management information system which will efficiently provide information needed to make timely decisions. Another task force, made up of representatives of the centers, is reviewing the organization of the Supply Centers to determine the degree to which uniform organization can be attained. The staff has begun to design a comprehensive and fully integrated Materiel Management System which will encompass, within a single framework, all facets of materiel management for all nine major categories of DSA-assigned materiel. A centrally controlled program system will be in effect early in fiscal year 1963, identifying DSA goals and objectives over a 3-year period and providing for periodic review and analysis.

DSA is also actively pursuing the goal of consolidating facilities and functions where different field activities perform parallel functions in close proximity to each other. Where consolidation is not practicable, DSA will at least pro-

vide common administrative support. For instance, consolidation of the Army and Marine Corps clothing factories in Philadelphia, Pa., was begun in May 1962 and completed ahead of schedule in August, with a resultant reduction of 218 personnel and prospective annual savings of over \$1.5 million.

DSA's management capabilities depend in no small measure on automatic data-processing systems. DSA expects to achieve increased supply efficiency by assuring that all of its major field activities are automated with compatible equipment. On an immediate basis, DSA is providing digital computers to those centers without them and is replacing obsolete or inadequate equipment with the much more flexible current generation equipment. The long-range goal is to develop a completely integrated system embracing all centers by 1965.

In the procurement area, a single Defense Supply Procurement Regulation has been issued, prescribing procedures under the Armed Services Procurement Regulation for DSA centers, to replace some seven different Service regulations governing these activities. DSA is also giving special attention to quality control, value engineering, improvement in procurement practices, and industrial mobilization.

The commodity areas under DSA management lend themselves particularly well to competitive procurement and encouragement of small business enterprise. DSA has established broad gauged programs aimed at surpassing even the fine record previously established by the single managers in these fields. During the first 6 months of its existence, 93.1 percent of DSA contracts were awarded on the basis of competition, 40.4 percent pursuant to formal advertising. Awards to small business in the same period amounted to \$464.6 million or 46.2 percent of the total available. On awards of \$10,000 or above, a total of \$262.2 million was awarded in labor surplus areas.

One of the most promising areas for improvements through consolidation lies in the system for wholesale distribution of commodities under DSA management. A comprehensive study of the distribution system, completed in April and approved in principle by the Secretary of Defense in August, provides for a drastic reduction in the more than 32 major installations currently in use and for the storage of all DSA commodities in a smaller number strategically located in reference to demand and tailored to military Service requirements. This will be combined with a centralized concept for inventory control for each commodity and establishment of a network of routing centers in close proximity to customers to receive all requisitions and route them via high-speed communication lines to the proper inventory managers. Present plans provide that the new distribution system will be implemented gradually as stocks are issued from installations no longer to be used for DSA stocks.

The ultimate purpose of the distribution system is to provide the military Services with what they want, when and where they want it. To assure that DSA is capable of doing this under all circumstances, an Emergency Supply Operations Center has been established in DSA Headquarters. The center will provide a single focal point for receipt and prompt resolution of operational supply support problems of an urgent or immediate nature, ranging from disaster relief to support of military operations. The center has already proved its effectiveness during the Peruvian earthquake and in meeting the supply demands posed by the activation of two new active Army divisions.

Defense-Wide Services

The Defense-wide programs for inter-Service support, materiel utilization, standardization, cataloging, and coordinated procurement are all aimed at the

common objective of achieving economy through elimination of duplication in the Defense procurement and supply systems. Consolidation of these various programs under one agency offers many advantages which DSA is preparing to exploit. In these areas, new regulations have been drafted, some bringing together in one package all present procedures. Further studies are under way to determine the best methods through which greater economy and efficiency can be effected.

Redistribution of materiel excess to local needs or in long supply is a most practical means of avoiding the need for new procurement or satisfying requirements which would otherwise remain unfunded. DSA is pursuing an aggressive program in this field. A system of continuous cyclical match of assets in long supply against inventory control point requirements has been developed. Projects already under way designed to improve item identification data for cross-servicing, such as Project SHAKEDOWN at the San Antonio Air Materiel Area, have been continued and extended under DSA monitorship.

Materiel is disposed of as surplus only after it has been thoroughly screened to determine that there is no need for it in the Department of Defense or other Government agencies. The acquisition value of materiel sold as surplus in fiscal year 1962 amounted to \$1,236.2 million as compared to \$1,771.3 million in fiscal year 1961. The decrease resulted from increased utilization attendant to expansion of the military establishment. Proceeds of \$86.7 million realized from these fiscal year 1962 sales of usable property represented a return of 7 percent, 1 percent higher than the return for the previous fiscal year. In addition, \$52.3 million was received from the sale of various types of scrap, waste, and other products, including ships sold as scrap.

DSA has a dual responsibility for cataloging. It administers the Federal Catalog Program for the entire Federal Government and its commodity centers are the responsible agencies for identification and cataloging of items coded to them for supply management. At the end of fiscal year 1962, DSA Centers had cataloging responsibility for about 16 percent of the total number of items in the DOD Catalog. This percentage is expected to increase as the centers assume complete control of their commodity areas.

There has been no change in the composition or functional coverage of the Federal Catalog system since its assignment to DSA. Since, however, the Federal Catalog is the primary basis on which coding, screening, disposal, procurement and management assignments, and materiel utilization are based, DSA control of the catalog is an indispensable adjunct to all its other operations.

The number of items in the Federal Catalog continues to grow, reflecting the immense complexity of the modern technological environment. On June 30, 1962, the Federal Catalog totaled 4,159,519 item identifications of which DOD activities accounted for 3,966,214. DSA and the military departments are continuing and extending the effort to delete older items for which a requirement no longer exists and to control the entry of new items. The standardization program is one method of achieving these ends. DSA responsibility for standardization is also dual. The agency is charged with administration of the Defense Standardization Program and, like the military departments, it has standardization responsibility for items it manages and those similar to them.

Initially, DSA has placed primary emphasis on identification and elimination of unnecessary items among those assigned to it for supply management. The decision process has been accelerated by virtue of the authority vested in the Director to make standardization decisions for these assigned items, subject to appeal by the military departments to the Secretary of Defense. The Director has not hesitated to use this authority in low-risk areas such as clothing and

general supplies, where the penalty of error would not be operationally serious. In the more technical areas, such as automotive and electronics supplies, where a wrong decision could have grave military consequences, DSA must rely heavily on the advice and cooperation of the military Services.

DSA is also developing, in conjunction with the military Services, plans and programs for improvement in the over-all administration of the Defense-wide Standardization Program.

DSA has made 6,087 deletions of assigned items during the first 6 months of its existence and hopes to make 27,000 more in the next fiscal year. Many of these actions have produced identifiable savings, as for instance the standardization on one grade of aviation gasoline instead of the four formerly in use.

There has been no significant change in the DOD Coordinated Procurement Program since its assignment to DSA. DSA has been engaged in compiling a complete list of items under single department procurement and preparing the necessary procedures to enable it to exercise its assigned function of review and evaluation. Preliminary action has been taken to revise pertinent DOD instructions on the program and to explore with the military Services changes in exception criteria to blanket single purchase assignments.

Similarly, in the exercise of the traffic management function, there has been no change in the mission and functions of the Military Traffic Management Agency in its transformation to Defense Traffic Management Service. During fiscal year 1962, MTMA and DTMS maintained traffic management responsibility and technical guidance over the movement of approximately 24,001,000 short tons of freight within the continental United States at a cost of \$451,200,000 and of 4,198,000 passengers at a cost of \$122,900,000. Some 560,200 short tons of household goods were shipped under their direction within the continental United States for DOD sponsored personnel, and an additional 98,000 on through bills of lading to and from oversea destinations. Transportation economies effected by DTMS totaled an estimated \$44,300,000.

Pursuant to the President's message to the Congress on transportation on April 4, 1962, DTMS has set up a special task force to explore every practicable means of simplifying the staggeringly complex rate structure in transportation.

The incorporation of DTMS into the DSA structure facilitates the integration of transportation implications into DSA's studies of distribution of commodities under its control. DTMS's detailed record and knowledge of transportation rate structure, traffic patterns, and routing aided immeasurably in the development of the DSA distribution system.

DSA is playing a vital role in the area of standardized systems. On January 1, 1962, the agency was assigned responsibility for coordinating the Defense-wide installation of the Military Standard Requisitioning and Issue Procedures (MILSTRIP), a uniform coded system utilizing a single punched card to replace a variety of requisition forms formerly in use. Actions were immediately taken to insure full implementation by all participating elements on the target date, July 1, 1962. DSA is now monitoring and evaluating MILSTRIP with a view toward increased standardization and proficiency. Moreover, MILSTRIP has been recognized as the forerunner of related standard systems and DSA is actively participating in their development.

Requirements and Provisioning

DSA is assuming its functions of calculating replenishment requirements for the items it manages on a phased basis. The Medical and General Supply Centers were already computing them when DSA assumed control, and the Sub-

sistence Center assumed the function on July 1, 1962. The rest of the centers are progressively moving into this area concurrent with the development of supply management responsibility and acquisition of the necessary data-processing systems.

Replenishment requirements are or will be computed or forecasted in the various centers on the basis of experience data on demand and issues and program data furnished by the military Services, i.e. their forecasted troop strength, deployments, organization, etc., and the respective tables that provide the basis of issue. DSA plans to standardize requirements activities at the various centers to the extent feasible and desirable. In addition, a careful review will be made of data needed for requirements calculations to assure valid forecasts.

The DSA charter also provides that the agency will "participate as a supporting inventory manager in the provisioning processes of the military departments." Provisioning involves spares, repair parts, special tools, and test and support equipment required for end items of material such as trucks, tanks, planes, and missiles. While provisioning requirements must continue to be calculated by the Services that control the end items, DSA, working with these Services, will seek to meet these requirements with standard items procured by the centers to the maximum extent possible. The DSA role in this field will expand gradually as the agency moves further into the construction, automotive, and electronics supply areas. During the transition period the effort has been largely confined to an attempt to carefully define this role and make necessary arrangements with the military departments.

Civil Defense Supplies

DSA has assumed a substantial additional management assignment for civil defense supplies. Under the Office of Civil Defense Stockpile Program, the agency has accepted responsibility for and management of the engineering, chemical, biological, and radiological stockpile material formerly under the control of OCD at Battle Creek, Mich. DSA's responsibilities for the Fallout Shelter Program involve the purchase of materials for an estimated 128,000 facilities containing stockable shelters throughout the United States and direction of distribution of these supplies from vendors and assembly points to wholesale storage locations.

Stock management for stockpile materiel was assigned to the Defense General Supply Center on February 28, 1962, and for fallout shelter provisioning on June 5, 1962. Procurement will be divided among the Medical, Subsistence, and General Supply Centers. These programs were well under way by the end of fiscal year 1962, but the major impact will fall into the ensuing fiscal year.

Relations With GSA

DSA provides a new focal point within the Department of Defense for relations with the General Services Administration (GSA) in the many areas in which cooperative arrangements have been worked out over the years, including cataloging, utilization and disposal, standardization, and procurement of common items. Close liaison has been established at both the headquarters and field levels. Under the policy of the Secretary of Defense that GSA procurement facilities should be used to the maximum extent compatible with military supply efficiency, the centers are intensively screening assigned items to determine those that can be furnished by GSA. Some 92,300 items had been offered GSA by the end of June 1962 (allowing for 49,000 later withdrawn for reconsideration), and

many thousands more may be offered as the electronics and automotive categories come under integrated management. In fiscal year 1962, the military Services purchased supplies valued at about \$683 million from GSA.

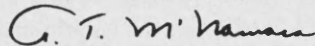
Conclusion

DSA has, since October 1, 1961, made substantial progress toward its goals of providing more effective common supply and service support to the military Services at less cost. An entirely new agency has been created and it has assumed effective command over a large and dispersed organization. In the process, review levels have been reduced, decision-making speeded, procurement regulations simplified, and paperwork cut all along the line. A new electronics center has been added to the structure, and a streamlined distribution system designed. The Army and Marine Corps clothing factories have been consolidated, and other consolidations are in prospect with attendant monetary savings.

This whole transition has been carried out without loss of effectiveness in meeting the demands of DSA's customers, the Army, Navy, Air Force, and Marine Corps.

During the planning period and the first 6 months, DSA has been primarily engaged in working out basic organization, policies, procedures, and goals in the various areas assigned to it. The results, in terms of increased supply effectiveness at less cost, will follow as the centers progressively become fully operational. Economies of at least \$30.4 million annually in the operating budget and a one-time savings of at least \$229 million in the next fiscal year through inventory drawdown are definitely in prospect. Cost reductions in other areas through streamlined distribution, accelerated standardization, increased use of long supply stocks, value engineering, more competitive procurement, and disposal of surplus at better advantage to the Government will make further contributions to realization of the goals of the Defense Cost Reduction Program. The search for economy must, nevertheless, always be subordinate to the higher priority goal of providing effective support to our fighting men.

DSA has many problems remaining and undoubtedly will always have them. As it moves into the more technical areas of supply, the challenge to integrated management increases in magnitude. The Director feels sure that with the dedication to performance of their mission which the personnel in both the headquarters and field commands have demonstrated during the difficult initial period, DSA can successfully meet this challenge and achieve the goals established for it.



A. T. McNAMARA,
*Lieutenant General, USA,
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Annex C
ANNUAL REPORT
of the
OFFICE OF CIVIL DEFENSE
July 1, 1961, to June 30, 1962

Introduction

President Kennedy, on May 25, 1961, in his message to Congress on Urgent National Needs, called for a new and revitalized civil defense program to protect the civilian population of the United States from the hazards of possible nuclear war.

The President said:

One major element of the national security which this Nation has never squarely faced up to is civil defense. This problem arises not from present trends but from national inaction in which most of us have participated. In the past decade we have intermittently considered a variety of programs, but we have never adopted a consistent policy. Public considerations have been largely characterized by apathy, indifference and skepticism; while at the same time, many of the civil defense plans proposed have been so far-reaching or unrealistic that they have not gained essential support.

Fiscal year 1962 saw the realistic civil defense program the President called for launched and well under way. Specifically, major actions were:

1. Vital civil defense operational functions were assigned to the Secretary of Defense by Executive Order 10952, effective August 1, 1961.
2. An additional \$207.6 million was appropriated for fiscal year 1962 to strengthen civil defense. This and funds transferred to the Department of Defense (DOD) from a prior appropriation for the Office of Civil and Defense Mobilization (OCDM) made available to DOD approximately \$256.8 million to finance civil defense.
3. Civil defense functions were reorganized under the Secretary of Defense to make possible a coordinated operation using military and nonmilitary resources for protection of the American people.
4. A functional internal civil defense structure, including eight regional offices under an Assistant Secretary (Civil Defense), was established, adaptable and responsive to the new program.
5. National headquarters were transferred from Battle Creek, Mich., to Washington, D.C.
6. Department of Defense resources were employed to support the new program.
7. Authority for civil defense functions of other Federal agencies was strengthened, and an effective working relationship established between them and DOD.

8. More than 55 million fallout shelter spaces were located in existing buildings, and approximately \$30 million was saved by using advanced data-gathering techniques in the process.

9. At a cost of approximately \$2.07 per shelter space, procurement was initiated for about 60 percent of the provisions needed to stock the shelters that were located in existing buildings. By using 81 strategically located warehouses, an estimated 85 percent of the supplies will be available for distribution within 25 miles of the shelter destinations.

10. The training and education effort was redirected and expanded—more than 261,000 persons were graduated from civil defense adult education classes, 6,690 were graduated from Office of Civil Defense (OCD) schools, and 11,503 completed medical self-help training courses.

11. An expanded and strengthened research program, supported by more than \$16 million in obligated funds and including 208 specific research tasks under contract, was designed to provide balance and perspective for long-range development of civil defense.

The highlights of these developments are contained in the body of this report. A more detailed report on civil defense programs and activities is published separately by OCD.

New Civil Defense Program

The President's new civil defense program is based principally on provision of a nationwide system of fallout shelters. All studies and analyses of possible nuclear attack patterns on the United States demonstrate that the fallout shelters can save more lives than any other feasible protective measure, and that the number of persons saved would decrease only slightly as the power and number of weapons increased.

Nationwide Fallout Shelter System

The first and most significant action under the new program was to determine the number of shelter spaces needed to protect the population and to design the means for obtaining them. The most reliable estimates call for approximately 235 million spaces to provide nationwide protection from radioactive fallout by 1967. This takes into consideration population increases and additional shelter spaces needed as a result of population concentrations in industrial and residential areas at differing times.

Development of Shelter Space

For the first time in the Nation's history, a realistic plan has been designed to provide the necessary number of shelter spaces. Methods planned during fiscal year 1962 for obtaining the required 235 million shelter spaces by the end of fiscal year 1967 included:

1. *The National Shelter Program.*—This nationwide program well underway by the end of fiscal year 1962, was expected to produce more than 70 million shelter spaces by 1967. More than 55 million of these were located through use of fiscal year 1962 appropriations. Contingent upon future appropriations, up to 4 million additional spaces per year are expected from this program.

Objectives of the National Shelter Program are to: (1) Locate suitable fallout shelters in existing buildings and facilities; (2) mark them with distinctive signs; and (3) stock them with food and water, medical and sanitation kits, and radiation measuring instruments.

A public fallout shelter marked and stocked under this program must have a protection factor of at least 100, which means that radiation inside the shelter would be reduced to one-hundredth or less of that existing outside. Space for at least 50 persons must be available. A minimum of 10 square feet per person is required in adequately ventilated shelters; in unventilated space, 500 cubic feet per person is required. For both, there must be about 1 cubic foot of secure storage space per person.

At the end of the fiscal year, a total of 53,303,566 shelter spaces having a protection factor of 100 or more had been located in 110,323 buildings. By mid-September 1962, this operation had accounted for 55.7 million such shelter spaces. All shelters meeting prescribed minimum requirements, and for which license agreements had been signed, were ready for marking.

Shelters must be stocked with supplies ready for use from the moment they are placed in the shelter. Essential items are: A basic food ration, water containers, sanitation kits, medical kits, and radiological kits.

The Federal Government develops, procures, and distributes survival items to local governments at the lowest possible cost. Local governments requisition the provisions, place them in licensed shelters, and assure their security, maintenance, and availability for emergency use.

All provisions are expected to be usable for at least 5 years and are adequate to sustain life and maintain occupants in condition to resume an active and productive life upon emergence. Supplementary provisions, to improve the comfort of shelter occupants, may be supplied locally if local officials so desire.

Shelter provisioning in fiscal year 1962 was concerned with establishing requirements, preparing specifications, and developing procedures for procurement, transportation, warehousing, and transfer of title of supplies to local governments. Local responsibility for shelter stocks was defined, and a test of a tentative supply system conducted in 14 cities. Procurement of about 60 percent of the provisions needed for surveyed shelter space was initiated at a cost of approximately \$2.07 per space.

2. The Federal Buildings Program.—This incorporates fallout shelters into Federal buildings and is expected to provide approximately 5 million public shelter spaces. About 0.5 million spaces are being obtained with fiscal year 1962 appropriations. The development of 4.5 million additional shelter spaces from this program is contingent upon future appropriations.

3. Proposed shelter incentives.—A proposed shelter incentives program, contingent upon future legislation and appropriations, would produce an estimated 20 million shelter spaces per year for a total of approximately 100 million spaces.

In February 1962, the Administration proposed legislation to the Congress (an amendment to the Federal Civil Defense Act of 1950) which would enable the Federal Government to "make payment to any nonprofit institution engaged in health, education, or welfare activities constructing or modifying approved public shelter space which meets shelter standards and criteria prescribed under the provisions of this Act."

This proposed legislation would encourage the development of fallout shelter space in nonprofit schools, hospitals, and welfare institutions, through payment for a portion (or all) of the estimated cost of providing the shelter space. Payment would not exceed \$2.50 per square foot of approved fallout shelter space which:

- (1) Meets shelter standards prescribed by OCD.

(2) Is located in an area where local civil defense officials certify existing shelter is inadequate to meet the needs under approved local shelter use plans.

(3) Can shelter 50 or more persons in one structure.

(4) Would be immediately available for public use as shelter in an emergency.

One of the compelling reasons for the proposed Shelter Incentives Program is that most of the potential shelter spaces found in the survey of the National Shelter Program are in downtown urban areas. Part of them would be usable only for the daytime working population and out of reach of the nighttime residential population. Schools usually are well located as shelter sites with respect to residential population.

Under the proposed program, the nonprofit status of an institution would be determined by standards used under the Internal Revenue Code.

4. *Private shelters.*—Approximately 60 million shelter spaces, about 12 million annually, were expected to be developed by industry, institutions, home owners, and others not eligible for Federal monetary grants for shelter construction. Although the private response started slowly, it was expected to accelerate in proportion to the activity in the Federal programs. As the impact of direct Federal action is felt, a combination of factors would work in favor of private shelter development; e.g., increased public understanding from tangible Federal programs, accelerated Federal technical assistance and guidance, and the influence of Federal example.

Shelter summary.—Following is the projection for obtaining 235 million shelter spaces:

<i>Source</i>	<i>Millions of spaces</i>
National Shelter Program-----	70
Shelter in Federal buildings-----	5
Proposed Shelter Incentives Program-----	100
Private initiative (home owners, industry, and others)-----	60
Total -----	235

Shelter Support Programs and Activities

These programs and activities include:

1. *Construction of emergency operating centers.*—To assure continuity of OCD emergency operations after attack, protected control centers are planned for OCD regional offices. One such center is scheduled for completion in March 1963, and funds appropriated in fiscal year 1962 will be used to design and construct a second one. Federal matching funds are used to help construct protected emergency operating centers for State and local governments.

2. *Prototype shelter construction.*—These shelters are used for public demonstration to stimulate shelter construction.

3. *Family shelter design and evaluation.*—In cooperation with other Federal agencies, OCD took concerted action to protect family shelter purchasers and ethical dealers from fly-by-night operators. New procedures were implemented for obtaining OCD evaluation of shelter designs and a series of designs, ranging from inexpensive do-it-yourself basement shelters to larger shelters having dual-purpose use, were produced and distributed.

4. *Protective Structures Development Center.*—Initiated during fiscal year 1962 at Fort Belvoir, Va., the center will be used for developing, testing, and

evaluating design and construction of protective structures and associated equipment.

5. *Protection of radio stations.*—Federal funds were offered to selected radio stations that agreed to provide fallout protection and equipment which would enable them to broadcast official information under radioactive fallout conditions that would exist after nuclear attack. A total of 75 stations signed such agreements; cost of the program was \$278,087.

6. *Engineering case studies.*—Contracts totaling approximately \$800,000 and covering 158 widely dispersed projects were awarded for case studies of structures offering major sources of future shelter.

7. *Advisory service.*—Several hundred architectural and engineering firms consulted the OCD in designing shelter for schools and other buildings during fiscal year 1962; a comprehensive series of publications on protective structures and related equipment was in preparation at the end of the fiscal year.

8. *Professional development of architects and engineers.*—Based mainly upon development work at Pennsylvania State University and the U.S. Army Engineer School (USAES), 2-week successive courses in fallout shelter analysis were offered at the USAES, the U.S. Navy School for Civil Engineer Corps Officers, and eight civilian schools. About 2,500 graduates of these courses enabled architect-engineer firms to carry out the fallout shelter survey of the National Shelter Program. Emphasis in the course was later shifted to planning and designing shelter areas in new construction.

Complementary Civil Defense Systems

The President's civil defense program is a balanced program recognizing the need for complementary civil defense systems to make nationwide shelters useful and practical under emergency conditions. These systems include Attack Warning, Communications, Monitoring and Reporting, and Damage Assessment.

Attack Warning System

A nationwide Attack Warning System (AWS) is essential to let people know when to go to shelters. The National Warning System (NAWAS), operationally ready at all times, is the Federal part. NAWAS consists of 7 OCD Warning Centers at major North American Air Defense Command (NORAD) installations, 46 Federal warning points, and 454 other warning points strategically located throughout the United States. This network of approximately 45,000 miles of circuits is a special voice communications system over which warnings can be sent simultaneously to 500 warning points. The State part of AWS relies upon various means to send warning and information to several thousand local warning points.

Previously tested and demonstrated, the National Emergency Alarm Repeater (NEAR) system is designed to give almost instantaneous indoor warning where outdoor warning systems are inadequate. A technical problem in the use of the NEAR system became apparent in fiscal year 1962 because its operation depended upon transmitting a special power pulse (240-cycle signal) over utility lines. Silicon control rectifiers, increasingly used in home appliances, were found capable of interfering with the 240-cycle signal used to activate the NEAR receiver. The planned solution to the problem is to use a 255-cycle signal to operate the NEAR system in lieu of the 240-cycle signal. Consequently, prototype installation of new NEAR generators on eight utility company systems was planned to test the use of a 255-cycle signal for activating NEAR receivers.

Communications

Civil defense communications systems are necessary to keep people informed during an emergency, to divert population movements, and to permit emergency operations. National Communications System No. 1 (NACOM 1), the basic system, is specifically designed for the speed, flexibility, and continuity of service required in civil defense emergency operations. It consists of leased telephone and teletypewriter services connecting OCD, its Regional Offices, and State civil defense offices. The portion connecting OCD and its Regional Offices is operational fulltime daily. The portion connecting OCD Regional and State offices can be activated within 1 hour. NACOM 1, which is a wireline system, is backed up by an emergency system, National Communications System No. 2 (NACOM 2). This is a high frequency radio network using modern single sideband voice transmission and radio teletypewriter methods. It is operational at OCD Headquarters and seven Regional Offices.

Radiological Monitoring

The nationwide monitoring and reporting system to collect, evaluate, and disseminate information on radioactive fallout is designed to include 150,000 monitoring stations. At the end of fiscal year 1962, 31,401 of these stations had been established, staffed with trained personnel, and equipped with necessary instruments. Federal field facilities (U.S. Weather Bureau, Federal Aviation Agency, Air Force and Navy Weather Services, and the Departments of Agriculture and the Interior) operated 3,475 stations. The remaining 27,926 stations were at State and local facilities (police, fire, health, and sanitation offices).

Radiological monitoring instruments were also supplied to federally approved community shelters, and radiological defense officers and monitor instructors were trained to provide monitoring personnel at monitoring stations and community shelters.

Damage Assessment

The damage assessment system provides for analyses of a broad spectrum of enemy attack possibilities to supply knowledge for: (1) Preattack planning; (2) evaluating adequacy of continuing civil defense systems and programs; and (3) reducing vulnerability. In addition, the system provides for several methods of estimating postattack damage to determine the most feasible post-attack operations.

Vulnerability analysis and postattack damage assessment rely heavily upon specific data on available human and material resources and upon the use of electronic computers and computer programs at the National Resource Evaluation Center (NREC). The prime objective of the OCD damage assessment program in fiscal year 1962 was to strengthen the data base covering these resources by making it complete and current. Contracts for this purpose were negotiated with Federal agencies which either have these data or have the capability of obtaining them.

In addition to improving the data base, OCD sought additional information on what effects various attacks would have on the Nation's resources. Through a contract with the Army Ordnance Facility, electronic computer equipment was made available for this purpose. The equipment, similar to that maintained at NREC, was used for hazard probability studies to provide data for vulnerability analysis and preattack planning; e.g., need for stockpiles, best location of stockpiles, areas of greatest attack danger, possible areas of heavy fallout, and best location for emergency operating centers.

Federal Assistance Programs and Activities

The President's civil defense program is premised and relies upon active and meaningful participation by all levels of government, by all types of private organizations, and by individuals responsible for others in each community. The basic objective of all Federal assistance programs and activities is to help State and local governments develop effective civil defense capabilities, especially fallout shelter for all their citizens.

Technical Assistance and Guidance

The need for coordinated technical assistance and guidance to State and local governments became acute in implementing and carrying out the operations of the National Shelter Program. State governors and civil defense directors were briefed on new civil defense program developments. Consequently, they issued directions to local officials for revising and updating their civil defense programs. OCD held statewide meetings with local officials to assist them in this process and regularly issued guidance and instructional materials on civil defense programs and individual projects to assure a coordinated approach among technical staffs of regional, State, and local officials.

To gain firsthand Federal, State, and local experience for guidance in identifying, marking, and stocking of shelters, a test project known as SHELTER ONE was started in January and pursued until May 1962. The final test operations included shelters in 120 buildings located in Washington, D.C., and 13 other cities in separate States. Analyses of the problems encountered in this operation led to improvement in methods and procedures and produced valuable information on procurement, warehousing, and distribution of supplies. Onsite monitoring of shelter marking and stocking in 24 cities enabled OCD to provide further technical assistance and guidance to local governments in handling shelter problems. Similar assistance was provided local governments in obtaining signed license agreements from building owners to permit public use of shelter space.

Training and Education

During fiscal year 1962, OCD concentrated upon reorienting all training and education activities to: (1) Train those key leaders specifically responsible for planning and directing civil defense operations; (2) provide skilled civil defense workers; and (3) provide for educating the public in use of shelters.

OCD schools in operation at the end of June 1962 were the Staff College, Battle Creek, Mich., and the Civil Defense Training Centers at Alameda, Calif., and Brooklyn, N.Y. The number of graduates of these schools totaled 6,690 persons for the year.

The Civil Defense Adult Education Program, established in fiscal year 1960, operates through regular adult education channels and contractual arrangements with the U.S. Office of Education. Under fiscal year 1962 contract by which \$979,228 was obligated, the program operated in 15 States and was expanded to 20 additional States, the District of Columbia, and Puerto Rico. Plans call for extending the program to all States in fiscal year 1963. In fiscal year 1962, the course was expanded and redesigned to: (1) Develop knowledge and understanding of organizations and plans for civil defense and (2) encourage individual and group participation in local civil defense, with particular emphasis on the fallout shelter program.

During fiscal year 1962, two seminars were held at OCD Staff College to train additional State personnel selected to conduct similar seminars for training local teachers in this program. More than 18,600 teachers have been trained in civil defense adult education who subsequently have conducted adult education classes from which approximately 425,000 persons have been graduated. In fiscal year 1962, about 13,000 of these teachers were trained and more than 261,000 persons were graduated from civil defense adult education classes.

In addition to the Civil Defense Adult Education Program, OCD maintained working relationships with major national education organizations to secure their support and assistance in civil defense.

A Medical Self-Help Program, developed under OCD contract with the U.S. Public Health Service, Department of Health, Education, and Welfare, and in cooperation with the Council on National Security of the American Medical Association, is designed to qualify people to meet emergency health needs if professional medical care is unavailable for prolonged periods. By the end of June 1962, a nationwide initial trial phase of this program had resulted in training 11,503 persons, and 1,334 classes were in progress.

Financial Assistance

The Office of Civil Defense, Department of Defense, provided Federal matching funds to States, territories, and possessions by authority of Public Law 920, 81st Congress, as amended by Public Law 85-606.

Funds obligated for supplies, equipment, and facilities during fiscal year 1962 totaled more than \$9 million. In addition, approximately \$9.7 million was made available to help State and local governments pay essential personnel and administrative costs. All State and local employment supported by these funds was required to be under a merit system satisfying Federal standards. Course completion certificates issued to students under the program for partial reimbursement of travel and per diem expenses of students attending OCD schools during fiscal year 1962 totaled 2,896.

Surplus Property

Public Law 655, 84th Congress, authorized the donation of Federal surplus property for use in any State for civil defense purposes. Since Congress authorized such action in 1957, property having an acquisition cost of approximately \$217.3 million has been transferred to the States. Federal surplus property valued at approximately \$35.3 million was donated to the States during fiscal year 1962.

Emergency Supplies and Equipment Inventory

Included in an inventory of emergency supplies and equipment valued at approximately \$23 million were forty-five 10-mile units of engineering equipment valued at more than \$10 million. Stored at 21 strategic locations, this equipment was available for local emergency use in pumping and purifying water. The remaining inventory consisted of radiological instruments valued at approximately \$11 million and chemical and biological defense equipment valued at almost \$2 million. The equipment included radiological instruments being packaged into kits for monitoring stations and Government-approved shelters.

Research

The President's program relies considerably upon the scope and imaginative concept of a carefully organized research system to give perspective and balance to the development of the nationwide shelter system and to all the complementary systems designed to make fallout shelters practical and useful in an emergency.

With approximately \$16 million invested in research (excluding development projects and prototype shelters), OCD conducted an intensive search for solutions to a wide range of civil defense problems. Specific research tasks under contract at the end of June 1962 totaled 208. Percentages of funds allocated to various types of research groups were:

	<i>Percent</i>
Department of Defense (DOD)-----	18.1
Federal agencies exclusive of DOD-----	15.8
Educational institutions-----	5.0
Private organizations, including industrial laboratories, research institutes and foundations, and quasi-Government agencies-----	61.1
Total -----	100.0

OCD organized civil defense research pursuits into four major functional categories to which funds were obligated as follows:

	<i>Amount</i>
Shelter -----	\$5, 614, 356
Support systems-----	4, 402, 140
Postattack -----	1, 625, 372
Systems evaluation-----	4, 407, 703

Total (excluding \$1,920,932 obligated for development projects and prototype shelters and \$22,513 reimbursable obligations for fire research advisory services) -----\$16, 049, 571

Supporting Activities

The President's program includes several supporting activities to inform the public of civil defense developments, to gain the participation of industry and national organizations in support of the program, to keep in touch with international developments in civil defense, and to obtain expert guidance and recommendations from advisory committees.

Public Information

At the President's direction, the Department of Defense published and distributed, in January 1962, a 48-page OCD handbook, *Fallout Protection: What To Know and Do About Nuclear Attack*. Of 35 million copies of the handbook printed in fiscal year 1962, 31 million copies were distributed. The *New York Times* printed the handbook in full, and many other newspapers printed excerpts from it. Ten newspapers distributed more than a million copies as Sunday supplements. Several business organizations and schools also distributed large quantities of the handbook.

To provide construction details on low-cost family fallout shelters described in the fallout protection handbook, OCD prepared and published 10 million copies

of another handbook entitled *Family Shelter Designs*. At the end of fiscal year 1962, more than 8 million copies of this handbook had been distributed.

For use by local organizations, OCD prepared an information kit, *Organized Action for Civil Defense*. The kit contained a guide on how to organize support for civil defense, especially for the fallout shelter program. By the end of fiscal year 1962, 70,000 kits had been produced, and 12 national organizations had agreed to distribute kits to local groups.

Through news releases, periodicals, trade journals, special publications, films, radio and television scripts, speeches, photographs, exhibits, and personal contacts, OCD told the civil defense story to both general and specialized audiences. In addition, technical information on weapons' effects and fallout shielding was widely circulated.

Major national organizations and many community leaders cooperated with OCD in support of civil defense, especially in expressing support of the nationwide shelter program. OCD presented 12 national organizations with certificates of appreciation for their support. Through nationally adopted resolutions or by letters from their official leaders, 11 national organizations pledged their support of the shelter program.

The Outdoor Advertising Association of America, in its fourth year of vigorous civil defense support, ordered 2,950 large billboard posters for nationwide display to familiarize the public with the standard yellow and black fallout shelter symbol. Many other organizations promoted the shelter program by publicity, shelter construction, and/or demonstration.

Industrial Participation

Approximately 1,500 industrial trade associations and professional organizations participated in disseminating informational material on procedures for developing industrial survival programs. OCD encouraged trade, professional, and industrial associations, schools and colleges, and State and regional government agencies to hold conferences and seminars on industry defense problems. Approximately 60 major meetings of this type were held in fiscal year 1962. Many industrial establishments have protective shelters for their employees and have progressed extensively in stocking these shelters with survival equipment and in training their personnel in methods of lifesaving and property protection.

Labor Support

The American Federation of Labor and Congress of Industrial Organizations (AFL-CIO) gave wholehearted and effective support to civil defense during fiscal year 1962 by adapting its nationwide civil defense activities to the new program and by placing the weight of its members behind the National Shelter Program and related activities. The AFL-CIO Legislative Department made effective presentations to the Congress in support of civil defense. This activity represented the coordinated effort of 38 State labor organizations. Information concerning it was distributed to 2.5 million members of the building and construction trades.

Organization of Civil Defense

At the end of fiscal year 1962, OCD was organized according to a functional pattern (see fig. 1), adaptable and responsive to the new civil defense program. Of a total personnel ceiling of 1,148 positions, 448 were authorized for headquarters, Washington, D.C., 600 for eight regional offices (see fig. 2), and 100 for field training centers and warning offices.

DEPARTMENT OF DEFENSE OFFICE OF CIVIL DEFENSE

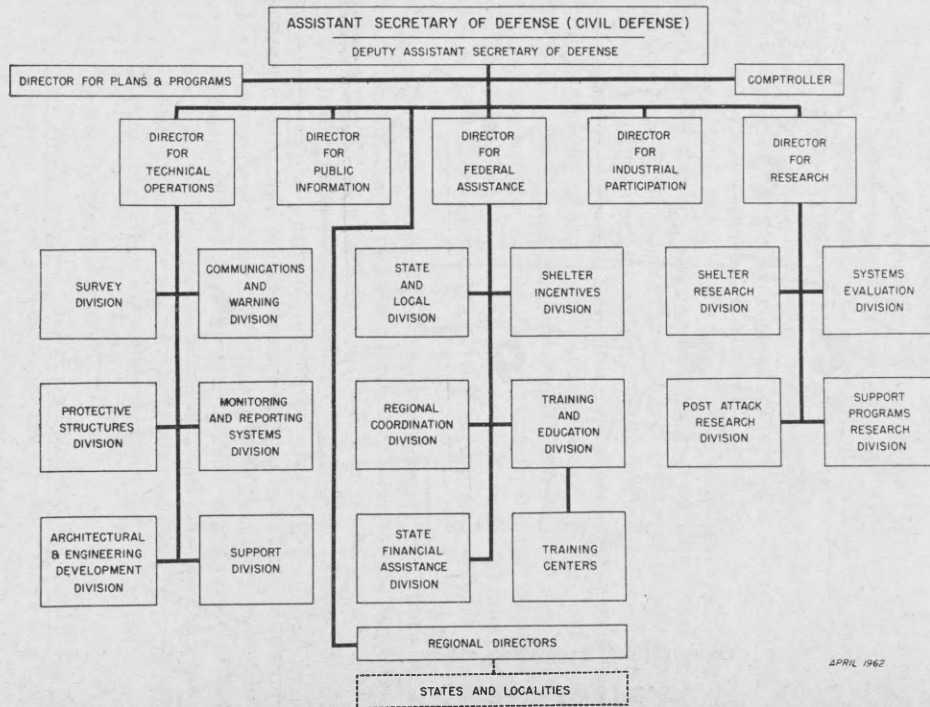


Figure 1.

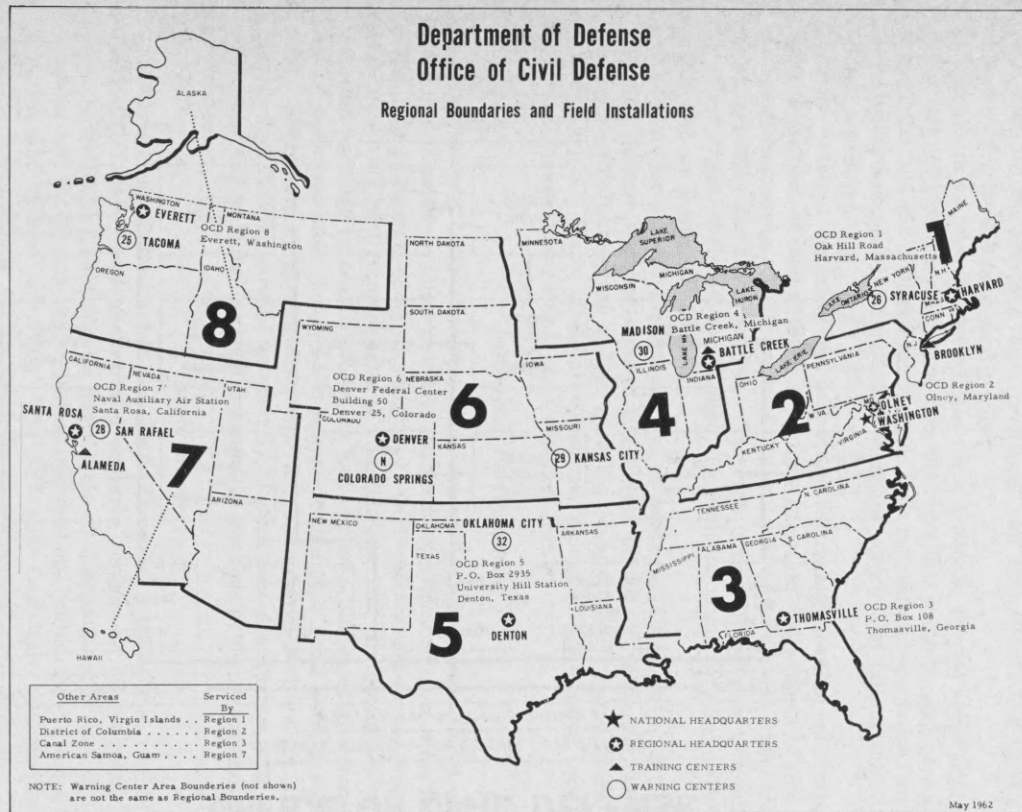


Figure 2.

Use of Department of Defense Resources

The new civil defense program was strengthened and given impetus by the use of DOD resources, as is evidenced by the following operations:

1. The Army Corps of Engineers and the Navy Bureau of Yards and Docks are carrying out the basic portion of the National Shelter Program. They are also being used in other areas of shelter program operations.

2. The Defense Supply Agency manages the logistics of OCD supplies. This includes procurement, receipt, storage, and issuance to State and local governments of all shelter supplies, and management of emergency equipment and supplies for State and local governments.

3. Preparations were completed for the Defense Communications Agency to take over civil defense communications early in fiscal year 1963.

4. Printing and distribution of all OCD publications was taken over by The Adjutant General's Office of the Army.

5. Legal services and legislative liaison are furnished to OCD by the General Counsel of the Department of Defense and the Assistant to the Secretary of Defense (Legislative Affairs).

6. Although OCD has a public information program closely coordinated with its training and education and other programs, the Office of the Assistant Secretary of Defense (Public Affairs) continues to perform certain civil defense public information functions to assure full coordination of public information common to both military and nonmilitary programs.

7. In developing damage assessment, warning, shelter, and other civil defense systems, OCD has significant assistance from DOD specialized services such as the Defense Atomic Support Agency and the Weapons System Evaluation Group, which provide means for broadbased and continuing evaluations of emergency conditions with which civil defense is designed to cope.

8. Among the functions assigned to the Secretary of Defense by Executive Order 10952 is that of providing emergency assistance to State and local governments in a postattack period, including water, debris clearance, fire, health, traffic, police, and evacuation capabilities. The military Services, being the major means of operations available to the DOD, would necessarily be relied upon to provide such assistance, and the military departments are helping to plan for this purpose. The Secretary of Defense has approved recommendations to award retirement point credit to Standby Reserve officers for participation in State and local civil defense work. Additional recommendations for military assistance to State and local governments in postattack operations are being prepared.

Relationship With Other Federal Agencies

Executive Order 10952 assigned major civil defense responsibilities to the Department of Defense. It also provided that the Director, Office of Emergency Planning, would advise and assist the President in connection with the total civil defense program and would be responsible for the continuity of government programs at the Federal, State, and local levels.

Executive Order 10958 assigned certain civil defense responsibilities with respect to food and medical stockpiles to the Secretary of Agriculture and the Secretary of Health, Education, and Welfare.

In February 1962, nine Executive Orders (10997-11005) which replaced previous emergency preparedness orders were signed by the President. They generally prescribe the emergency preparedness functions of the several de-

FINANCIAL SUMMARY FOR FISCAL YEAR 1962

(Thousands of Dollars)

Budget activity	Funds available for obligation	Funds obligated	Unobligated balance
TOTAL-----	¹ 256, 790	¹ 248, 646	8, 144
SHELTER-----	158, 863	157, 904	959
National Shelter Survey-----	59, 000	58, 414	586
Equipment and Supplies Stockage-----	81, 013	80, 738	275
Shelter in Federal Buildings-----	17, 500	17, 443	57
Shelter Support Programs-----	1, 350	1, 309	41
WARNING AND DETECTION-----	29, 850	29, 846	4
Warning and Alert-----	5, 120	5, 118	2
Radiological Instrument Procurement and Maintenance-----	24, 730	24, 728	2
EMERGENCY OPERATIONS-----	13, 101	12, 097	1, 004
Training, Education, and Public Information-----	6, 914	6, 490	424
Survival Services-----	1, 557	1, 556	1
Communications and Control-----	3, 479	2, 900	579
Damage Assessment-----	1, 151	1, 151	-----
RESEARCH AND DEVELOPMENT-----	19, 075	17, 993	1, 082
FINANCIAL ASSISTANCE TO STATES---	21, 138	18, 802	2, 336
MANAGEMENT-----	12, 424	11, 965	459
CONSTRUCTION OF FACILITIES-----	2, 339	39	2, 300

¹ Excludes July 1961 obligations of \$1,483,000 incurred by the Office of Civil and Defense Mobilization but transferred to the Department of Defense for liquidation.

Figure 3.

partments and agencies under all emergency conditions. To a limited degree these Executive orders include civil defense functions. The activities involved are closely related to the normal functions performed by the departments and agencies. These civil defense activities must be carried out in consonance with national civil defense plans, programs, and operations of the Secretary of

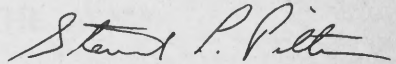
Defense, but the OCD does not fund the functions performed by these agencies under the Executive orders.

The OCD, however, has entered into certain contractual arrangements with other departments and agencies to use their special competence in assisting the Office of Civil Defense to perform its functions under Executive Order 10952. Examples of such action include compilation of damage assessment data and research projects. Improvements have been made in defining the desired product and in relating actual performance to the funds expended.

Financial Summary

Approximately \$256.8 million was made available to the Office of Civil Defense for obligation in carrying out civil defense operations during fiscal year 1962. Of this total, \$207.6 million was from an appropriation to the Department of Defense for this purpose. The remaining amount of approximately \$49.2 million was derived by transfer of \$49.1 million to the Department of Defense from 1962 and prior appropriations for the Office of Civil and Defense Mobilization, and \$0.1 million was received in reimbursable orders.

At the end of the year, OCD had obligated more than \$248.6 million. Of the \$8.1 million unobligated on June 30, 1962, \$2.3 million was carried over into fiscal year 1963 for construction of facilities and the remainder, \$5.8 million, was withdrawn from civil defense accounts. The amounts obligated for specific operational programs and activities are shown in figure 3.



STEUART L. PITTMAN,
Assistant Secretary of Defense
(Civil Defense).

Annual Report
of the
SECRETARY OF THE ARMY

July 1, 1961, to June 30, 1962

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I. The Army in Review—1962

During the past year the Army has attained renewed vigor and vastly improved readiness. The strength, training, deployment, and equipment of its forces were greatly improved. Operational capability and combat readiness have been markedly enhanced.

Today the Army not only acts as a bulwark of freedom in providing combat forces in being, but also performs yeoman service in defense of the free world by furnishing expert training and technical assistance in many fields—intelligence, communications, research and development, techniques of ground fighting, and many more.

Berlin Crisis—The Call to Arms

In July 1961, when the need arose for strengthening the armed forces, the Army responded. More than 113,000 Reservists and National Guardsmen left their homes and families to answer the call to arms. Draft quotas were increased fourfold. The strength of the Army increased to over one million men.

The callup revealed the state of readiness of the reserve components at the time of mobilization. This mobilization was the most efficient in the history of the country; however, problems were revealed in the areas of personnel strength, equipment status, and training levels. A major effort has been exerted by the Army to eliminate the deficiencies noted in its mobilization procedures.

The mobilization proved beyond doubt the spirit and willingness of the reservist to answer the call of the President in an emergency. Reserve component units were required to attain combat readiness earlier than ever before. A 13-week intensified combat training program was used. By March 1962, the two combat divisions and other major combat units were considered combat ready and assigned to the Strategic Army Corps (STRAC).

Training of new troops was accelerated. New Army training centers were established—one at Fort Carson, Colo., the other at Fort Polk, La. However, the one at Fort Polk was moved to Fort Chaffee, Ark. prior to beginning training operations—and an infantry training center was added to the existing facilities at Fort Gordon, Ga.

Nearly 290,000 active Army and 73,000 Reserve Forces Act trainees received 8 weeks of basic combat training. Advanced individual train-

ing to attain more specialized skills was then conducted at the Army training centers or service schools.

During the late summer and fall, U.S. forces in Western Europe were increased by some 40,000 Army troops. Army elements in Berlin were reinforced by an additional battle group as a reassurance to West Berliners that their freedom would be maintained.

All of the newly deployed units were soon operational and the mechanization of the three infantry divisions in Seventh Army was completed. In addition, the U.S. Army, Europe, was equipped with the new M-14 rifle, M-60 machine gun, the M-60 main battle tank, and the M-113 aluminum body armored personnel carrier.

Special Warfare

While responding to the simultaneous demands for greatly strengthened conventional and nuclear deterrent forces, the Army also made great strides in expanding its Special Forces—an elite, hard-hitting force to meet the threat of Communist-inspired insurgency, subversion, or guerrilla activities.

Many civilians in remote mountain areas of West Virginia and Washington were startled at times by Special Forces groups participating in environmental training as well as counter guerrilla training. Environmental training exercises were also held in Panama and Alaska.

A Special Warfare Directorate was established in the Army Staff and a general officer was appointed as special assistant to the Chief of Staff to provide over-all planning and direction of Special Warfare activities.

The strength of Army Special Forces for guerrilla and counter guerrilla operations more than doubled during the year and will continue to increase to programmed force levels.

Mobile Special Forces training teams have been assigned to southeast Asia, Latin America, and the Middle East.

Using Special Forces Groups as a nucleus, four area-oriented Special Action Forces have been organized to assist friendly countries in countering Communist-inspired insurgency. Each force contains, in addition to its Special Forces personnel, experts in civil affairs, engineering, intelligence, psychological warfare, and medicine.

The Army played a key role in the formulation of the civic action concept which has the purpose of encouraging military forces of the developing nations to assist in the economic and social development of their peoples. As Executive Agent for Civic Action in the Department of Defense, the Army was instrumental in vigorously implementing the concept through the visits of mobile training teams, composed

of medical doctors, engineers, communications, and public administration specialists, to countries requesting such assistance.

To permit Special Forces teams to parachute into small, otherwise inaccessible areas from altitudes of 500 to 30,000 feet, two new steerable parachutes have been developed and standardized for Special Forces operations.

Civil Affairs

The Department of the Army was faced with increased challenges in the broad field of civil affairs, particularly in the administration of the Ryukyu Islands. As Executive Agent for the Civil Administration of the Ryukyus, the Army, in implementation of policies directed by the President, developed major new programs for the economic development of the Ryukyus and undertook a number of related actions to improve conditions in the islands, which include the U.S. strategic base on Okinawa.

Special Warfare Training

Since small, specialized units cannot meet all of the problems in special warfare, all Army units now receive instruction in counter-insurgency operations.

Revision of curricula in all Army career service schools has begun. Because of a serious lack of knowledge of foreign languages, training has been expanded and intensified at the Army Language School at Monterey, Calif. Also, a program has been initiated to send key officers for on-the-spot observation and orientation in insurgency-threatened areas throughout the world.

Air Mobility

Air mobility may be the decisive factor on any battlefield of the future, and may be of paramount importance in coping with the effects of nuclear weapons, if they are used. Air vehicles—especially helicopters—are bringing about a revolution in the Army's ability to surmount the obstacles of time and terrain in the movement of troops, weapons, ammunition, and supplies, in the prompt evacuation of sick and wounded, and in insuring effective control over deployed units.

Several new aviation units were activated during the period of this report. They include one Army aviation company for support of Seventh U.S. Army Headquarters, in U.S. Army, Europe (USAREUR), and two fixed-wing tactical transport companies and two medium helicopter companies in the continental United States (CONUS). In addition, a new special warfare aviation detachment was activated at the Special Warfare Center, Fort Bragg, N.C.

During the past year, U.S. Army, Pacific (USARPAC), aviation

was increased by the deployment of an Army aviation battalion headquarters and an assortment of helicopter and fixed-wing aviation units.

The Army now has some 5,648 aircraft. It is anticipated that by 1970 there will be a significant increase in the number of helicopters, fixed-wing, and vertical take-off and landing (VTOL), craft in use. With the increasing use of the helicopter and VTOL planes, many functions that were formerly the responsibility of armored cavalry regiments can be assumed by the "Air Cavalry." To provide armament for Army aircraft, adaptation of machinegun and rocket systems for the light helicopters continued with success.

A most significant event during the year was the successful first flight and acceptance of the twin-turbine, CH-47A Chinook. This advanced helicopter will carry a 3- to 5-ton load faster and more efficiently than other Army helicopters in use.

Also, the Army has under development several different types of vertical takeoff and landing aircraft. Several concepts are being evaluated—these include the XV-4A (formerly VZ-10) Hummingbird and the XZ-5A fan-in-wing. Evaluation of these types should allow selection of one design in the near future for prototype development.

Air Defense

Army Continental Air and Missile Defense Forces continued to be limited by the lack of a system to cope with an intercontinental ballistic missile (ICBM) attack.

The NIKE-ZEUS guided missile system is the most advanced system under development in the free world for the interception of enemy ICBMs.

A test model of a NIKE-ZEUS system has been deployed to Kwajalein Atoll, where it has recently made the successful intercept of a special target vehicle launcher by an ATLAS ICBM from California.

All active Army AJAX units were either converted to NIKE-HERCULES or phased out. Fifteen CONUS defense areas are still defended by 69 NIKE-AJAX firing batteries manned by the Army National Guard. At the end of the year, the Army force structure included more than 200 NIKE batteries committed to CONUS air defense, and more than 50 NIKE-HERCULES units overseas. The addition of new and more powerful radars has extended the capabilities of HERCULES to include some of the most advanced airborne targets.

During fiscal year 1962, HAWK demonstrated an antimissile capability by destroying LITTLE JOHN, HONEST JOHN, and CORPORAL missiles. The HAWK, known as the "bullet with a brain,"

was designed to be effective against low-level, high-speed targets. Units are now deployed in Korea, Okinawa, Germany, and with STRAC.

Training at the Air Defense Center was devoted almost entirely to NIKE-HERCULES and HAWK. An improvement in annual NIKE practice firing has taken place through the introduction of target simulators. These simulators make it possible to conduct a majority of the NIKE practice firings at Fort Bliss, Tex., without using live targets and will effect monetary savings while providing more realistic training.

The Reorganization

During the year, a most comprehensive study of the functions and procedures of the Department of the Army resulted in a major reorganization plan. The plan was reviewed by the President, the Secretary of Defense, and Armed Services Committees of the Congress and was approved on February 17, 1962.

The study was concerned mainly with the management, personnel, logistics, and training functions at higher echelons. A major purpose of the reorganization was to simplify command responsibilities and at the same time preserve the operational structure in the field.

The wholesale materiel responsibilities of the Army have been integrated into a single major command, the U.S. Army Materiel Command (USAMC). This command is responsible for research, development, production, procurement, distribution, and maintenance of materiel.

The reorganization placed the responsibility for most training functions upon the commander of the U.S. Continental Army Command (USCONARC). Previously, this responsibility had been fragmented. This change enables the Army to look to one source for training of all individuals and units to meet worldwide operational requirements. The state of readiness of the Army's combat and support units should be improved by this action.

Another important feature of the reorganization is the integration and centralization of career management of officers, and also enlisted men, in the Office of Personnel Operations. The Army's ability to attract, hold, and develop competent personnel should be greatly enhanced by this forward step.

The Combat Developments Command is responsible for making a projection as to the nature of future land warfare and the types of forces, materiel, and concepts necessary to engage in such action. It is oriented toward the determination of doctrine for special warfare, atomic and nonatomic warfare, as well as for the logistical support requirements of the field army.

The Army Staff, as a result of the new command agencies, is considerably reduced in size. It has been relieved of many of its command-like and operating functions and is organized to provide policy, staff supervision, management, and planning.

Reorganization Objective Army Divisions (ROAD)

Two divisions were organized under the ROAD concept—the 1st Armored Division at Fort Hood, Tex., and the 5th Mechanized Infantry Division at Fort Carson, Colo. Experience with these two divisions has confirmed the validity of the ROAD concept. The Army is planning to complete the conversion of all active Army divisions to the ROAD structure.

Personnel

The Army began the year with an actual strength of about 858,000 men. The fiscal-year-end strength of about 1,066,000 resulted from involuntarily extended tours of duty, increased draft procurements, and the callup of reserve components.

At the end of the year there were about 500,000 civilians (U.S. and foreign nationals) employed by the Department of the Army—approximately 1 civilian for every 2 persons in uniform. Total civilian strength increased by about 3,400 during the year, the first increase since fiscal year 1952.

Construction

Despite a continuing decline in construction funds, the Army provided a modest increment of facilities construction.

New construction starts totaled \$176 million, and completions for the active Army and reserve components totaled \$247 million.

The continuing shortage of adequate family housing remains a problem, as the availability of such housing is a factor in maintaining individual efficiency and morale.

In addition to its regular civil works and military construction programs for the Army, the Corps of Engineers supervised other construction valued at \$1.4 billion, of which \$608 million was placed under contract during the year.

Budget and Funds

The Army's total obligation authority in fiscal year 1962 was \$12,747 billion compared with \$10,527 billion for the previous year. The increased funds were for the support of major improvements in readiness.

The budget for fiscal year 1963 was developed under a new programming and budget procedure which related cost to principal military missions rather than the functional areas. Obligation authority from the Congress provides for further broadening of Army basic and applied research efforts. Significant effort will be made to enhance the Army's limited war capability, to include continued development of such items as lightweight infantry and artillery weapons with increased range, mobility, and lethality.

Research and Development

Research and development, which is broad in scope, must keep pace with rapidly developing technology.

The M-14 rifle, M-60 machine gun, M-60 tank, M-113 personnel carrier, M-79 grenade launcher, and other lightweight, highly effective weapons were distributed to troops during the past year.

Construction of a MAULER firing facility at the White Sands Missile Range, N. Mex., was begun. MAULER is a self-propelled air defense guided missile system under development and is designed to provide protection against short-range ballistic missiles and low-flying aircraft.

The Army continued development of SHILLELAGH, a missile to be used against field fortifications, armor, and for close-in support of troops.

Acceleration of research and development in chemical and biological weapons and defense continued.

Conclusion

The items dealt with in the preceding paragraphs, along with other major activities and accomplishments of the Army during fiscal year 1962, are covered in detail in the subsequent sections of this report.

II. General Purpose Forces

Army Forces, Europe

Crisis

In June 1961, the Soviet pressure on Berlin was intensified. Khrushchev's ultimatum of June 21 stated that, if the West refused to negotiate "at the end of the year," the Soviet Union would take unilateral action in signing a treaty with East Germany. In rejecting the Soviet terms, President Kennedy pointed out that Berlin was not an isolated problem, but the focal point of the worldwide Communist challenge. The ensuing close review of our military posture resulted in a decision to strengthen our military forces. Included in this decision was the requirement for strengthening our forces in Europe to meet the Berlin threat.

Our forces in Europe are organized under the joint Service unified U.S. European Command (EUCOM). The keystone of this command, and of NATO, was the U.S. Army, Europe (USAREUR), which provided trained combat-ready forces in a continual state of readiness to respond to any emergency. Khrushchev's latest threat found USAREUR forces consisting of about one-quarter of the U.S. Army's worldwide strength and approximately two-thirds of its overseas strength.

The heart of USAREUR is the Seventh Army, composed of two corps with three infantry mechanized divisions, two armored divisions, four armored cavalry regiments, surface-to-surface and surface-to-air missile battalions, and necessary supporting units. These forces were understrength, and the three infantry divisions were not fully mechanized.

Major troop units which made up the Berlin Command were two battle groups and a reinforced tank company, along with combat and administrative support units. This force was, and is today, of particular importance as a concrete demonstration to the people of Western Europe of United States determination to withstand Communist encroachment.

The Southern European Task Force (SETAF), located in the northeastern plain of Italy, has the mission of providing ground-delivered atomic support to NATO forces in the defense of northern Italy.



Figure 1.

It was apparent that these forces were not adequate to meet the new threat. The political-military situation necessitated the augmentation of our forces both in Berlin and in Europe in general.

In response to the crisis, Congress authorized the President to call up reserves and passed the largest peacetime defense appropriation to that time. These actions made it possible to strengthen USAREUR forces during 1961, and to provide a notable increase in equipment deliveries. Sharply increased deliveries of M-113 armored personnel carriers were begun in order to mechanize the Seventh Army infantry divisions.

Equipment was pre-positioned in Europe sufficient to equip two additional divisions in the event the need arose to airlift these forces. Subsequently, in a series of air mobility exercises called LONG THRUST, three Army battle groups were deployed to Europe, where they drew equipment from the pre-positioned stock and participated in field training exercises.

In the latter part of 1961, U.S. Army elements in Berlin were reinforced by one battle group as a reassurance to West Berliners that their freedom would be maintained, despite the erection of a wall between the sectors. In a move to simplify the organization in Berlin, the combat and combat support units stationed there were organized into the Berlin Brigade, under the command of the Commanding General in Berlin.

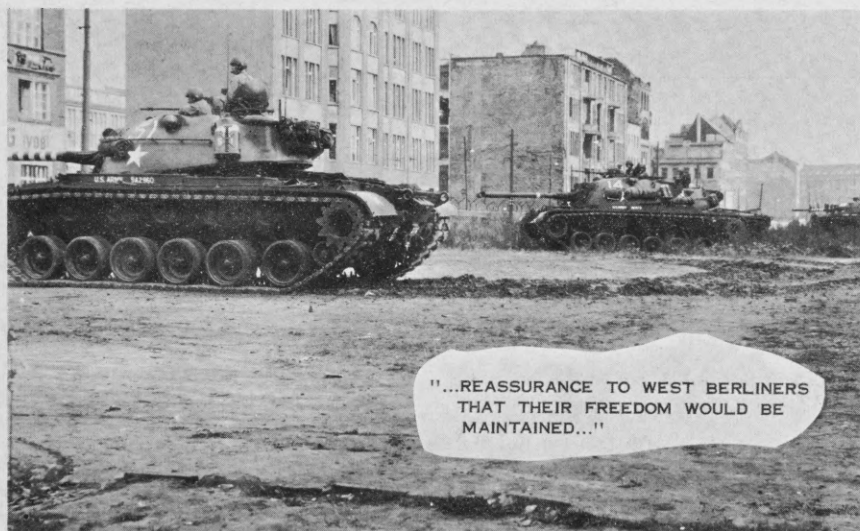


Figure 2.

Training

USAREUR forces have continued their high state of training necessary for combat readiness.

The U.S. Army School, Europe, for example, furnishes specialized training for U.S. Army forces in Europe, and, in addition, conducts courses of instruction for hundreds of students from the U.S. Air Force, Navy, and NATO allies.

Seven major training exercises were conducted in 1962, as follows:

- CHECKMATE was a theater-wide command post and field training exercise, which included air and ground staff participation by elements involved in the defense of Western Europe.

- DEVIL SPREAD provided both training for airborne units and logistic training necessary to support the operations.

- PEACE MAKER, AUTUMN SHIELD, BRANDY WINE, and MAIN BARGE were divisional exercises designed to train units within the divisions to enhance tactical readiness.

- GRAND SLAM I was an exercise to practice procedures of command and control, communications, and ground movement.

The resultant readiness of our forces played a large part in demonstrating the Nation's readiness to stand up to the Soviet threats.

Equipment

Because of its geographical location with respect to the Iron Curtain and its key NATO role, USAREUR is placed high on the priority

list for issuance of new equipment. The Army modernization program strives continually to improve USAREUR's weapons and equipment. As rapidly as items become available from production, they are being provided to the combat forces in Europe to enhance both conventional and atomic capabilities. USAREUR has already received such new items of equipment as the M-14 rifle, the M-60 machinegun, the M-60 tank, and the M-113 armored personnel carrier.

Personnel

In USAREUR, there have been temporary shortages of technically trained personnel, and there have been administrative and morale problems created by the deployment of augmentation forces to Europe and the temporary suspension of Government-sponsored travel of dependents. For the most part, these problems have been overcome by personnel management programs within USAREUR and the restoration of dependent travel to Europe.

On June 18, 1962, the Secretary of Defense approved a pilot plan for unit rotation called ROTAPLAN. The plan calls for rotation of three battle groups in Europe, with one being rotated from the United States every 2 months. First units involved will be battle groups of the 2d Infantry Division, Fort Benning, Ga., and the 8th Infantry Division, now stationed in Germany. The U.S. units will be airlifted to their overseas stations, where they will remain for 6 months' temporary duty before being rotated back. Time intervals in the United States between overseas tours normally will range from 18 to 30 months. The movement overseas of dependents of the individuals assigned to ROTAPLAN units will not be authorized. Many dependents of the three rotating battle groups now in Europe will be returned to the United States during the coming 10 months. Provisions will be made for dependents to remain at or near the stateside posts of their sponsors when the sponsors' units go overseas on temporary duty.

It is hoped that ROTAPLAN will make European assignments sufficiently short that the necessity for dependent travel will be minimized. This will help to alleviate the serious morale problems that have resulted from the separation of Army personnel from their dependents as well as aid in solving the gold flow problem.

Facilities and Installations

In general, the facilities in Europe have been adequate for the needs of the command, with no major problems existing. In general, troop housing has been adequate with the necessary maintenance and repair being accomplished as required. Considerable effort was required to provide billeting for the augmentation forces which arrived in the latter part of 1961.

A major problem in the field of training is the continued lack of adequate training areas. A deficiency of particular importance is the lack of areas available for armor-type training near stations, river crossing sites, and drop zones for airborne training. A comprehensive survey of all USAREUR land area holdings and requirements in Germany has been conducted, and, as a result, requests have been made for additional local training areas.

Army Forces, Pacific

The Soviet threats against Berlin brought into sharper focus the worldwide danger of Communist aggression; in the Pacific area, the danger was particularly great in Laos and South Vietnam.

The United States has pursued a policy of strengthening indigenous forces to resist Communist incursions. Current collective defense treaties cover peripheral areas in Asia where subversion, infiltration, and guerrilla warfare have been used extensively by the Communists in efforts at expansion and conquest. A key element of U.S. defense forces in this area is U.S. Army, Pacific (USARPAC).

USARPAC, with headquarters in Hawaii, is the Army component of the unified Pacific Command. It performs the vital role of providing both forces and support to the Pacific Command and to the United Nations Command in Korea. Its mission in this farflung area is to assist in maintaining the security of Japan, the Ryukyu Islands, Korea, Hawaii, and friendly Pacific and southeast Asian countries.

Major subordinate commands within USARPAC are these: Eighth U.S. Army (Korea); U.S. Army, Ryukyu Islands (Okinawa); U.S. Army, Japan; and U.S. Army, Hawaii. Among the major combat forces assigned to these units are two divisions in Eighth Army, one division in Hawaii, and an airborne battle group on Okinawa.

Besides providing combat forces in Korea, Okinawa, and Hawaii, USARPAC is supplying command and organizational support for the expanded U.S. Army reactions to Communist adventures in southeast Asia. The command also supplies military equipment to friendly southeast Asian nations through the Military Assistance Program (MAP), as well as many of the U.S. Army mobile training teams. Joint Military Assistance Commands have been established in Vietnam and Thailand, and Army personnel make up the bulk of the U.S. forces in the area.

Training continued at a high rate and ranged from basic training of the individual soldier to participation by major units in strategic mobility exercises. Operational readiness of the commands was constantly improved through field training, command post exercises, and practice alerts. Special emphasis was placed on training in counter-



Figure 3.

guerrilla and counterinsurgency operations. This training was not restricted to Special Forces personnel, but was conducted by combat units at all levels. The soundness of this policy of maintaining forces for any eventuality was demonstrated by the movement of the 1st Battle Group of the 27th Infantry to meet Thailand's request for assistance against possible Communist aggression.

Army Forces, Alaska

U.S. Army, Alaska (USARAL), is the Army component of the Alaska Command, a unified command whose responsibilities extend geographically over all Alaska and the nearby islands. USARAL is charged with the ground defense of Alaska and participates in the air defense effort of the Alaskan Command. Additional missions include the development of cold weather and mountain warfare doctrine, operation of the U.S. Army Cold Weather and Mountain School, and furnishing certain logistic support to other members of the unified command.

USARAL operates primarily from three locations: Fort Richardson, Fort Wainwright, and Fort Greely.

Two infantry battle groups form the nucleus of the USARAL ground combat force, while USARAL air defense units, employing the NIKE-HERCULES guided missile weapon system, form a part of the air defense of Alaska.

Significant accomplishments in USARAL during the past year include these:

- Establishing an airborne rifle company to enhance flexibility for deployment.

- Testing and standardizing the M-116 full-track, 1½-ton carrier to provide better cross-country mobility.

- Installing more sophisticated acquisition and tracking radars for the NIKE-HERCULES air defense system.

Training during the past year saw USARAL progress from small unit through battle group level exercises, culminating in Exercise GREAT BEAR, which had many valuable results, to be highlighted later in this report.

Army Forces, Caribbean

The U.S. Army, Caribbean, is the Army component of the unified Caribbean Command. Its major tactical units are two battle groups and an air defense battalion. Action was initiated during the period to reorganize the battle groups as an infantry brigade under the ROAD concept (see p. 133). The Antilles Command in Puerto Rico is a subordinate command of the U.S. Army, Caribbean, and has headquarters in San Juan.

U.S. Army military missions are located in all friendly Latin American republics except Brazil, where there is a Joint Brazil-U.S. Military Commission, and Haiti and Mexico. An Army element of a MAAG is located in the Dominican Republic.

The second annual conference of American armies was conducted at Fort Amador, Canal Zone, during the period July 10-14, 1961. These conferences, under the sponsorship of the U.S. Army, Caribbean, provide an opportunity for army leaders of the Western Hemisphere countries to meet together, discuss mutual problems, exchange ideas, and strengthen the bonds of friendship and understanding.

Operation FRIENDSHIP, sponsored by the U.S. Army, Caribbean, has continued to assist in furthering U.S. relations in the Canal Zone. Contributions to worthy causes, adoption of orphanages and children's hospitals, Army band concerts, and the blood donation program are only a few of the projects being accomplished under Operation FRIENDSHIP.

A joint Army-Air Force training exercise, BANYAN TREE III, was conducted in Rio Hato, Panama, during the period February 22-March 2.

The U.S. Army Caribbean School, located at Fort Gulick, Canal Zone, conducts formal instruction for officers and enlisted men of the Latin American military establishments. It is the only school in the

U.S. Army which presents all instruction in Spanish. Since 1949, approximately 11,000 Latin American students have attended the school, with over 1,600 attending during fiscal year 1962.

Continued emphasis has been given to counterinsurgency training by the U.S. Army, Caribbean. The counterinsurgency operations courses at the U.S. Army Caribbean School, which were initiated in July 1961, are now being conducted four times each year. In addition to Latin American military personnel, U.S. Army personnel stationed throughout Latin America attend these courses.

The Strategic Army Forces

The Berlin and southeast Asia crises sharply dramatized the crucial role played by our strategic reserve forces. The Strategic Army Force (STRAF) is the continental United States-based reserve which the Army maintains for rapid deployment to meet emergencies requiring reinforcements anywhere in the world, within hours of notification. This capability was dramatically demonstrated in a series of operations called LONG THRUST in which battle-group-sized units were quickly flown to Europe.

At the beginning of fiscal year 1962, STRAF was composed of six divisions, of which three were combat ready. The remaining three divisions were engaged primarily in training functions.

The callup of reserve components and other measures resulted in a sharp increase of Army personnel and materiel. These actions allowed the three STRAF divisions engaged in training to be relieved of these functions while being strengthened to achieve a combat-ready status. The two National Guard divisions called to active duty achieved combat ready status within 6 months and were added to STRAF. Thus STRAF forces were increased from six to eight divisions during the fiscal year. Two additional divisions, the 1st Armored Division and the 5th Infantry Division (Mechanized), were activated in fiscal year 1962 and are soon to be combat-ready. They will replace the two National Guard divisions which will be returned to State control.

Eight combat-ready divisions, together with supporting forces, are organized into two corps forces called the Strategic Army Corps (STRAC). These corps forces give the United States the capability of responding with a corps-sized force to each of two widely separated emergencies simultaneously.

Some of the key elements of the Strategic Army Forces have been equipped with the most modern items of equipment, such as the M-14 rifle, M-151 quarter-ton truck, M-60 machinegun, and M-79 grenade launcher.



Figure 4.

Redistribution of other equipment from lower priority units has been made to assure adequate materiel support for these combat-ready units.

Training

Replacement Training

The U.S. Army training centers took over the mission of training in the various skills required, all new personnel, many of whom had previously received basic and advanced individual training in STRAF divisions.

Two new Army training centers were opened—one at Ft. Carson, Colo., which was subsequently phased into Ft. Polk, La., upon activation of the 5th Infantry Division (Mechanized) at Ft. Carson; the other at Ft. Chaffee, Ark., which was activated solely by reserve component personnel. An infantry training center was added to existing Army training facilities at Ft. Gordon, Ga. Outside of the continental United States, there are training centers in Puerto Rico and Hawaii.

During the year, nearly 290,000 active Army and 73,000 Reserve Forces Act trainees received 8 weeks of basic combat training. Advanced individual training to attain more specialized skills was then conducted at the Army training centers or in Army service schools.

The callup revealed the state of readiness of the reserve components at the time of mobilization. This mobilization was the most efficient in the history of the country; however, problems were revealed in the areas of personnel strength, equipment status, and training levels. A major effort has been made by the Army to eliminate the deficiencies noted in its mobilization procedures.

The mobilization proved beyond doubt the spirit and willingness of the reservist to answer the call of the President in an emergency. Reserve component units were required to attain combat readiness earlier than ever before. A 13-week intensified combat training program was used. By mid-February, the two combat divisions and other major combat units were considered combat ready and assigned to STRAC.

Environmental and Counterinsurgency Training

Environmental training was conducted at the Jungle Warfare Training Center in Panama and at the Cold Weather and Mountain School in Alaska. There were three major unit exercises conducted. In Alaska, Exercise GREAT BEAR was participated in by 8,000 troops of the STRAC and U.S. Army, Alaska.

In Exercise BANYAN TREE III, 1,500 troops of the STRAC and U.S. Army, Caribbean, participated.



Figure 5.

Desert training was conducted at Ft. Irwin, Calif., with 8,000 troops in Exercise BRISTLE CONE.

Other environmental training was conducted along with counter-guerrilla training in the remote mountainous areas of the Monongahela National Forest of West Virginia and in the Olympic National Forest of Washington State.

Counterinsurgency orientation, indoctrination, and training were provided for all combat units because of the increased importance of Army aid to friendly foreign nations threatened by Communist-inspired insurgency.

Unit Training Exercises

Units based in the continental United States conducted a highly successful mobility exercise program during the year. Highlights of the program were six strategic mobility exercises in which combat teams were airlifted to Turkey, Panama, Europe, the Far East, and Alaska.

In Exercise GREAT BEAR, for example, one battle group was airlifted to Alaska for participation in a cold weather exercise along with elements from U.S. Army, Alaska, and Alaska National Guard and Reserve units; Air National Guard units from the continental United States and Alaska; and a unit from the Princess Patricia's Canadian Light Infantry Regiment. This exercise was considered to be the toughest and most exacting of all the U.S. Army's training exercises conducted this year.

Army Service School Training

Army service schools provide only that training which can be accomplished more effectively and economically than by units, Army training centers, or by civilian institutions.

Training during the year stressed the understanding of insurgency and civic action. This training is centered around conditions which breed insurgency, techniques for countering insurgency, and various types of civic action. The Army Special Warfare School, for example, revised and expanded courses along these lines, and the Army set up new special courses on special warfare doctrines and concepts for senior commissioned officers and civilian personnel.

During the year, about 153,000 personnel completed Army resident courses in 43 Army service schools and colleges.

Extensive training of Army personnel in scientific, academic, managerial, and technical fields was provided to 37,600 personnel through the use of civilian schools and industrial organizations.

Other joint inter-Service educational activities during the year are shown :

<i>Educational Activity Source</i>	<i>Army Enrollment</i>
Industrial College of the Armed Forces-----	44
National War College-----	34
Armed Forces Staff College-----	126
Joint Military Packaging-----	75
Defense Atomic Support Agency-----	800
Armed Forces Surplus Disposal Management-----	40

1, 119

Special Warfare

A Special Warfare directorate was established in the Office of the Deputy Chief of Staff for Military Operations, and a general officer was appointed as special assistant to the Chief of Staff to enhance over-all planning and direction of special warfare. The strength of especially trained special warfare troops was more than doubled, and is expected to climb to almost 9,000 by June 1963.

Around the nucleus of Special Forces Groups were built four area-oriented special action forces to assist friendly countries in countering Communist-inspired insurgency.

Each of the special action forces contains special forces personnel as well as experts in other areas, such as civil affairs, engineering, intelligence, psychological warfare, and medicine.

Mobile training teams have been provided to southeast Asia, Latin America, and the Middle East.

In March, an aviation detachment was activated to insure fullest possible use of Army aviation in counterinsurgency.

As small specialized units cannot meet all of the problems in special warfare, other units now receive specialized instruction in counterinsurgency operations. For U.S. and foreign officers, regionally oriented courses were initiated to teach how Army elements can help counterinsurgency in southeast Asia, Latin America, and the Middle East. In addition, the number of students attending courses at the U.S. Army Special Warfare School at Fort Bragg, N.C., has approximately tripled.

The Army has expanded and greatly improved its counterinsurgency instruction at its 18 service schools, the Army War College, the U.S. Military Academy, and in the ROTC program. In addition, troop unit training programs now incorporate tough, realistic field training devoted to counter guerrilla planning and operations. A program has been initiated to send key officers for on-the-spot orientation in insurgency-threatened areas throughout the world.



Figure 6.

Language training has been intensified through expansion of the Army Language School at Monterey, Calif., by specially contracted instruction at civilian institutions, and by locally conducted courses.

Army Aviation

Background

The Army's vital interest in aviation stems from its responsibility for winning the land battle. In helping to meet this responsibility, Army Aviation performs six principal functions. These are observation, combat troop movement, rapid supply movement, air mobility for land reconnaissance, command and control, and evacuation of casualties.

Organic aviation is the name given to the planes and helicopters, and the men who pilot them, which are assigned as a part of the equipment and personnel of an Army ground commander.

Current Studies

In response to a request from Secretary of Defense McNamara, the Army directed a group under Lt. Gen. H. H. Howze to reexamine the quantitative and qualitative requirements of organic aviation.



Figure 7.

The U.S. Army Tactical Mobility Requirements Board (Howze Board) is to recommend action to give the Army the maximum attainable mobility in the combat area. In so doing it is to recommend the extent to which aviation can be substituted for conventional military surface transportation systems, to evaluate new concepts of tactical mobility, and to determine what new organizations and/or air vehicles are required to exploit such concepts.

Two other studies are currently being made to examine the current inventory of aircraft and relate requirements of the 5-year procurement program to the 5-year force structure and financial program.

Current Actions

The buildup of forces in Europe required several Army aviation units. Among them were an additional medium helicopter company and a medical air ambulance company. In order to provide the U.S. Army, Europe, with additional maintenance capability, a transportation Army aircraft maintenance company (direct support) and a transportation heavy maintenance and supply company (general support) were deployed to that theater.

During the past year, aviation in U.S. Army, Pacific, has been increased by the deployment to that theater of an Army aviation battalion headquarters, three light helicopter companies, two fixed-wing tactical transport companies, one medium helicopter company,

one medical air ambulance detachment, two Army aircraft operating detachments, and three transportation Army aircraft maintenance detachments were deployed with the helicopter companies. Some of these have been further deployed to southeast Asia. The U.S. Army has provided a helicopter airlift capability to the Republic of Vietnam's armed forces. The Vietnamese, with this kind of assistance, are becoming increasingly effective in dealing with the enemy.

U.S. Army, Alaska's capability for tactical air mobility was doubled by the deployment to that theater of additional light helicopter and fixed-wing tactical transport companies.

Several new aviation units were activated during the period of this report. They include one Army aviation company for support of Seventh U.S. Army Headquarters in USAREUR, two fixed-wing tactical transport companies and two medium helicopter companies in the continental United States. In addition, a new special warfare aviation detachment was activated at the Special Warfare Center, Ft. Bragg, N.C.

Status of Aircraft and Aviators

The current status of aircraft is shown in figure 8. Total inventories of aircraft represent 80 percent of the current authorizations while the personnel inventory is 79 percent of that authorized.

Conclusion

In our quest to attain new capabilities for our basic ground combat mission, we are looking more and more to aviation to provide the necessary mobility required of a modern Army.

Support and Special Activities

The Army's increasing commitments in remote areas of the world further stress the importance of effective command and control of tactical combat forces and good combat intelligence.

In ground combat surveillance, lower tactical echelons began receiving new transistorized and more effective ground radars that can detect enemy forces in darkness and under adverse weather conditions.

The Army aerial surveillance capability was bolstered as the new Mohawk surveillance aircraft, equipped with improved photographic equipment, began to appear in oversea combat units. Tests of this highly versatile aircraft and its camera equipment were conducted in the Arctic maneuver GREAT BEAR and proved highly successful in providing excellent photographic information under severe environmental conditions.

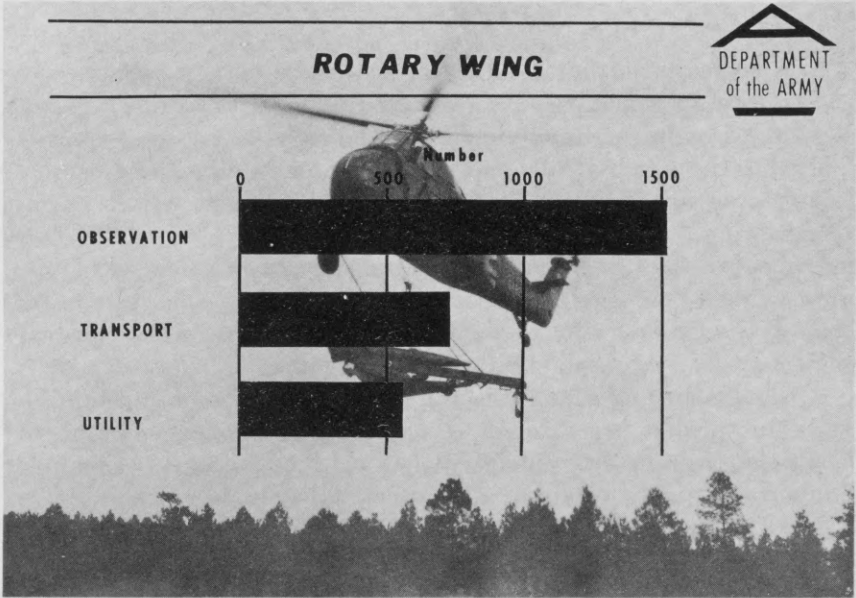
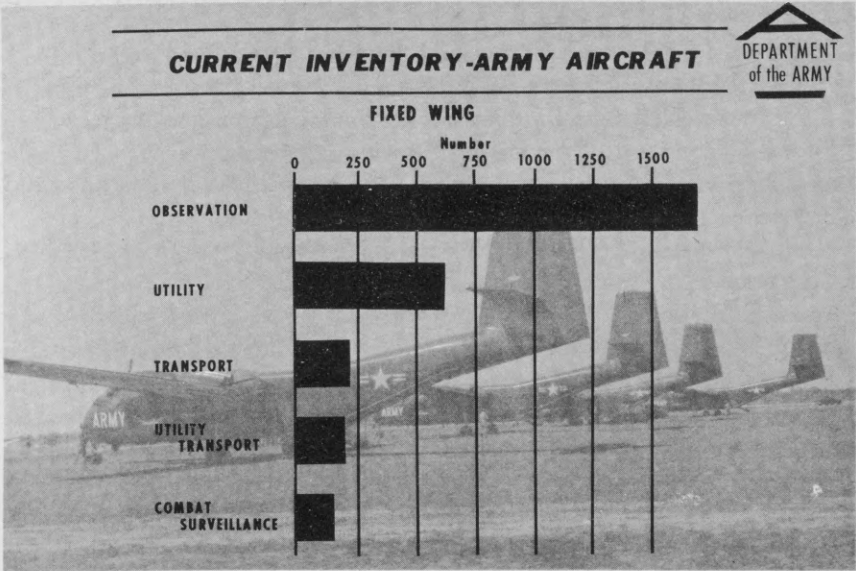


Figure 8.

The use of communications and electronics equipment has taken on such importance in command and control that ever-increasing numbers of electronic devices of all types are being used in combat forces. It follows that electronic warfare operations also assume an increasing importance. Having been forced by the greater tempo of battle and the dispersion of forces to rely more heavily on radio and radar, combat forces are now more susceptible to electronic jamming.

Data-processing techniques are showing greater promise of facilitating combat operations. Actual field tests, applying computer techniques to artillery fire control and fire planning, proved conclusively that first-round accuracy of fire could be achieved and nuclear fire planning could be reduced to 15 to 30 minutes. Preliminary applications of computer techniques to combat intelligence have also indicated that information can be processed with the speed needed to keep pace with modern combat.

Army combat communications capability will be improved significantly as new models of tactical combat radios begin to reach the troops next year. New FM radios with lighter weight, increased frequency selection, and greater power will enable platoon- and company-size units to maintain contact when separated by greater distances.

Intelligence

New accreditation for military attachés was obtained and attaché offices were opened in the Republic of Congo (Brazzaville), Somali Republic, Dominican Republic, Panama, and Syria.

During the last half of fiscal year 1962, an Intelligence Computer Center was installed at Headquarters, Department of the Army, representing a major step in Project ACSI-MATIC, whose primary missions are the development and implementation of computer programs to support intelligence research processing. The system will achieve limited operational capability in some of the highest priority subject areas in the second half of fiscal year 1963.

Although the major analysis and programing efforts in connection with this project are through contractors, an intensive formal and on-the-job training program is underway in the Intelligence Computer Center to obtain a substantial inhouse capability in these areas.

The Defense Intelligence Agency (DIA), established in October of 1961, has had a considerable impact upon the Army's over-all intelligence role. Substantial numbers of intelligence specialists have been transferred to DIA, while some intelligence functions remained with the Army during the interim period required for DIA to become fully operational. This transfer has made the transitional period a difficult one for the Army.

Communications

The Strategic Army Communications System (STARCOM) provides the Army with a rapid and reliable means of communication throughout the world. It consists of facilities, systems, and services needed for U.S. strategic command and control.

Principal portions of STARCOM have been integrated and interconnected with the Navy and Air Force strategic communications systems to form a single Defense Communications System (DCS), managed by the Director, Defense Communications Agency (DCA). In addition to other interests in Army communications, DCA supervises the Army's modernization of the STARCOM portion of DCS.

The Department of the Army has recommended to the Secretary of Defense the installation of an all-Service integrated communication system using automatic switching, to be known as the Universal Integrated Communication System (UNICOM). It was designed to accommodate all known communications modes, and operational improvements will include increased speed, error detection and correction, improved reliability and security, and long distance dialing on a controlled basis, with automatic preemption for high priority traffic.

Mapping and Geodesy

During fiscal year 1962, the Army continued mapping and geodetic operations to meet the requirements established by Joint Chiefs of Staff. Approximately 250,000 square miles of large-scale and 600,000 square miles of medium-scale maps were produced by the Army.

The Army's primary means for obtaining data for map production is through international mapping agreements. There are now 50 mapping or map exchange agreements for which the Army has the U.S. collaborating responsibility. New cooperative agreements are being negotiated with several additional countries.

The Army continued to coordinate its foreign mapping program with the Agency for International Development (AID) to the mutual benefit of the Army and AID programs.

The use of artificial satellites continues to be our most promising means for obtaining geodetic control. The Corps of Engineers continued operation of Project BETTY which exploits the original VANGUARD and subsequent satellites with mobile minitrack stations to locate more accurately the Pacific islands and to perfect intercontinental geodetic ties.

The Army also participated in designing the Army, Navy, NASA, Air Force (ANNA) satellite, which is to obtain a full-scale comparative evaluation of various systems of the three Services, and thereafter to utilize the satellite for appropriate geodetic surveys. The first

test flight failed to orbit and another test is planned for early in fiscal year 1963.

Army Helicopter Operations in Antarctica

Army helicopters provided aviation support for an unprecedented topographic mapping survey conducted in Antarctica by the U.S. Geological Survey and the National Science Foundation during the U.S. Navy's Operation DEEP FREEZE 62. Two UH-1B (formerly HU-1B) Iroquois helicopters traversed some 1,500 miles along the mountain range bordering the Ross Ice Shelf and the Ross Sea, enabling survey teams to establish ground control points for over 100,000 square miles of previously unmapped, or partially charted, terrain. Topographic engineers and equipment were placed at 68 different sites on mountain peaks ranging in altitude up to 13,500 feet. The National Science Foundation estimates that the use of Army helicopters for the topographic survey reduced by 90 percent the time required by normal surface transportation.



Figure 9.

Sealift and Airlift Support of Strategic Army Forces

The Army is unique among the Services in that it does not possess organic means for strategic air or sea mobility.

The Air Force and the Navy, respectively, are responsible for providing the required airlift and sealift. The Army is vitally concerned that the necessary capabilities are provided to support Army missions.

Fast reaction with adequate air, sea, and ground combat force is essential to respond to a variety of contingencies.

The Air Force modernization program which began in fiscal year 1962 will increase both strategic and tactical airlift capabilities. The new jet strategic cargo transport, the Lockheed C-141, which is being developed primarily to modernize the Military Air Transport (MATS) fleet, is on schedule and will become operational in fiscal year 1965. Until such time as the C-141 enters the Air Force active inventory, interim modernization is being accomplished with the C-135 jet and the C-130E. The C-135 jet was used in Exercise LONG THRUST, and troops were moved from McChord Air Force Base, Wash., to Rhein-Main Air Force Base, Germany, over the polar route, in 10 hours flying time, as opposed to 28 hours with conventional piston-driven aircraft. The C-130E, an extended-range version of the C-130, began to enter the inventory in March 1962 for use both as a strategic transport and to modernize the tactical air fleet.

Since there is an upper limit on the amount of aircraft we may have, and since the size and weight of some cargo prohibits transportation by air, airlift alone will not be adequate to meet all of our requirements. It must be backed up with sealift. The Army has continued to support the request for adoption of Navy proposals for a long-range modernization program which would result in the construction of new cargo ships and tankers.

Because both the Air Force and Navy modernization programs will require considerable time, continuing efforts are required to insure that current deficits are reduced and eventually eliminated.

Reserve Forces

The Army has long believed in a policy of strength in reserve. The services of citizen-soldiers have been needed in all of the major conflicts engaged in by the United States from the Revolutionary War to the Korean conflict. There can be no question that the reserve components are integral parts of the One Army team—active Army, Army National Guard, and Army Reserve.

Until 1961, men and units constituting the reserve components had never been mobilized except to fight a war. In the 1961 callup, however, the citizen-soldier was asked to serve his country in a new capacity—not to fight a war, but to prevent one.

In July 1961, the tension over Berlin reached crisis status. On July 25, the President, in an address to the Nation, reaffirmed this country's determination not to back down before the Soviet pressure.

At this time, the active Army had an authorized strength of 875,000

men, although its actual strength as of June 30, 1961, was 858,000. There were 14 divisions, 11 of them combat ready. It was apparent that the active Army did not have sufficient forces to meet its constantly expanding worldwide commitments. To remedy this situation, the President sent a message to Congress proposing the strengthening of our armed forces.

The Congress reacted quickly to President Kennedy's proposals by passing a resolution to strengthen the military forces by a call to active duty of Ready Reserve units and individuals for a period of not more than 12 months. This was soon followed by the passing of the largest peacetime defense appropriations act to that time.

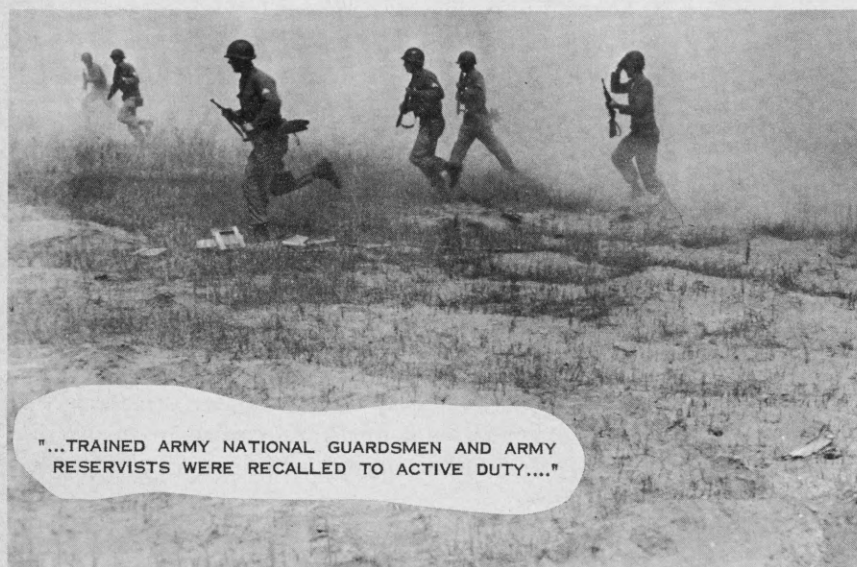


Figure 10.

Strength In Depth In Action

Confronted with the need for immediate additional active duty strength, the Nation called upon the reserve components for a partial mobilization which in its speed was in sharp contrast to such measures taken in the past. Fortunately for the Nation, the Guardsmen and reservists stood ready to respond to the President's call. As they have so often before, they came from the cities, the farms, and the hamlets, often at substantial sacrifice, but always with the full knowledge that they were doing their duty. In this way, 113,254 trained Army National Guardsmen and Army Reservists were recalled to active duty either as members of units or as individuals.

Two National Guard combat divisions were included in the call-up—the 32nd Infantry from Wisconsin and the 49th Armored from Texas. The 100th Training Division, an Army Reserve unit from Kentucky, was called to organize an Army training center at Fort Chaffee, Ark.

In addition to these, some 438 nondivisional combat and combat support units were ordered to duty to round out or balance the expanding Army forces. Many of these units were technical service organizations which perform engineer, signal, ordnance, medical, quartermaster, chemical, and transportation support missions. Several field artillery and armored units were also included, as were general support elements, such as administrative units.

Many individual reservists were required to bring recalled reserve component units up to authorized mobilization strength. These were needed to fill critical shortages in the medical, intelligence, transportation, language, legal, and electronic fields.

In the case of the individual reservists called to fill unit vacancies and to supply critical skills, priority was given to those with the least amount of prior active service. Therefore, wherever possible, vacancies were filled with reservists who had only 6 months' active duty prior to the call. Of course, for jobs which required more extensive training and advanced military skills, it was necessary to call on some reservists with more active Army experience.

As an added measure, certain reserve component units, in a special "priority" status, were subject to immediate call throughout the build-up period. In this category were two National Guard Divisions and additional support units which were designated to participate in an accelerated training program geared to enhance combat readiness, thereby providing additional insurance for over-all Army preparedness. In addition, individual reservists were selected to fill personnel vacancies in the "priority" organizations. These individuals were to report if, and when, the units were called to active service.

Operational Readiness Attained

Reserve component units on active duty participated in such exercises as IRON DRAGON, MESA DRIVE, BRISTLE CONE, SENECA SPEAR, QUICK KICK, WET HORSE II, and RELOX '62.

The two major ones were the division-sized exercises—IRON DRAGON, which involved the 49th Armored Division with its supporting units at Fort Polk, La., in early May 1962, and MESA DRIVE, which included the 32nd Infantry Division with its supporting units at Yakima Firing Center, Wash., during the same period.

The rapid progress of the reserve component units on active duty

toward full combat readiness was emphasized by the placing of the two National Guard Divisions and five other units on the STRAC troop list.

In addition to the reserve component units which formed part of the actual STRAC troop list, over 100 others were designated for important STRAC support missions. The remaining recalled units were concerned with other important Army activities. They included mobilization base, training base, and technical and administrative units, many of which assume operational duties immediately upon recall.

The operational status of these and other units allowed the Army the flexibility it needed to reinforce its oversea deployments with trained active Army troops and to expand its training and support base in the United States.

From September 1 to December 31, 1961, during the buildup of the active Army, the input into 6 months' Reserve Forces Act (RFA) training was suspended and no-prior-service enlistments were restricted to those under 20 years of age. Enlistments in the reserve components and Ready Reserve service obligations which normally would have expired between October 1, 1961, and June 30, 1962, were mandatorily extended for 1 year. The enlistment of no-prior-service men was suspended between September 6, 1961, and January 30, 1962, in two National Guard divisions and in combat and support units selected to conduct intensified training for a possible callup.

Strength of the Reserve Components

On June 30, 1962, the Ready Reserve forces not on active duty consisted of 1,208,007 trained individuals, of whom 622,426 were assigned to units.

To simplify the mandatory obligation laws and correct inequities therein, the Army has developed, for submission by the Department of Defense to the Congress, amendments to present laws which will provide the reserve components with one reserve obligation program, 6 years in duration, for the age group 17-26. Flexibility, whereby the reservist may be trained in the so-called "hard skills," is achieved through broader provisions for active duty for training.

Equipment

Based on a plan initiated in fiscal year 1960, electrical accounting machines for personnel and property accounting were installed at all 14 U.S. corps headquarters during the year 1962. This system was not established in time to be of help during the callup but will be of great benefit in evaluating the status of combat and mobilization readiness in the future.

To provide sufficient equipment for the reserve component units on active duty during the callup in fiscal year 1962, it was necessary to withdraw equipment from Army Reserve and National Guard equipment pools and to assign equipment from Priority II and III units. Further reassignment of available equipment was effected to provide minimum essentials for home station training for units not called to active duty. While the equipment pools have not been replenished, sufficient equipment to provide realistic summer camp training has been made available from active Army, Reserve, and National Guard sources. Planning for fiscal year 1963 emphasized procurement of equipment and maintenance thereof. Greatly increased funds for equipment will be essential if the reserve posture is to be maintained and enhanced.

Reserve Component Training

Reserve component units not called to active duty and on a paid-drill status conducted a minimum of 48 drills during the year, of which a minimum of 6 were conducted in extended periods on weekends. Annual field training, scheduled on a calendar year basis, was conducted for all of these units. The attendance at training drills averaged 92.9 percent for the Army National Guard and 86.4 percent for the U.S. Army Reserve. Average attendance at annual field training for calendar year 1962 was 96.7 percent for the Army National Guard and 95.4 percent for the U.S. Army Reserve.

Military Educational Requirements for Officer Promotion

Effective January 1, 1962, minimum military educational requirements were established as prerequisites for selection and promotion of reserve component officers above the grade of first lieutenant. In general, these requirements are for the successful completion of specified service school courses appropriate to the officer's rank and branch or receipt of constructive or equivalent credit for such courses.

School Training of Reserve Component Personnel

Army service schools enrolled 11,799 reserve component personnel during the year. Schools included combat arms, technical, administrative, and officer candidate schools, as well as the Army War College and the Command and General Staff College. The special officer candidate courses for reserve component enlisted men, conducted at Fort Benning, Ga., and Fort Sill, Okla., enrolled 511 officer candidates.

Accredited Army National Guard State officer candidate schools enrolled 3,478 officer candidates. These State-operated schools are the main source of second lieutenants for the Army National Guard.

Not all reservists who wish to improve their military professional

qualifications are able to attend a resident course at the Army service schools. Such personnel pursue their military education by attending USAR schools or completing extension courses. During the year, 20,914 reservists attended U.S. Army Reserve schools. Participation in Army extension courses included 60,516 reserve component personnel.

Civilian Technicians With the U.S. Army Reserve

One of the major tasks in the improvement of mobilization readiness of the Army Reserve is the provision of an adequate number of full-time civilian technicians. These technicians provide essential support for units by performing the necessary administrative, supply, and maintenance functions on a day-to-day basis.

As of the end of fiscal year 1962, there were 3,076 technicians employed, against an authorization of 3,233. For fiscal year 1963, it is planned to hire an additional 500 unit technicians.

Army National Guard Technicians

These are the Federally recognized members of the Army National Guard who are employed by the States in the day-to-day administration of Guard units. Their duties include the training of personnel, maintenance and repair of equipment, supply and accounting duties, and keeping NIKE missile sites operational 24 hours each day. Of the 20,264 technicians employed on June 30, 1962, 4,219 were engaged in NIKE air defense.

Army National Guard Air Defense Artillery

Sixty-nine NIKE-AJAX firing batteries were operational in 15 CONUS defense areas and 6 NIKE-HERCULES firing batteries were operational in Hawaii as of June 30, 1962. The conversion of NIKE-AJAX batteries in CONUS to NIKE-HERCULES has been initiated by the assignment of the first groups of AJAX personnel to active Army schools for training in operation of HERCULES.

Army National Guard Aviation

During fiscal year 1962, the Army National Guard did not reach the programmed goal for Army aviator strength, which was 1,646. This situation is attributed to factors incident to the callup, including the retention on active duty of personnel who otherwise would have been released and recruited for Army National Guard aviation units. The number of Army National Guard aviators at the end of the fiscal year was 1,297. There were 225 Army aviators mobilized with their National Guard unit in October 1961, bringing the total Army National Guard aviators in Federal and State status to 1,522. Fixed-

wing courses enrolled 158 Guard officers; 190 aviators enrolled in the rotary wing course, and 22 in the contract instrument flying course.

U.S. Army Reserve Aviation Program

During fiscal year 1962, the number of USAR aviators, assigned to units and participating in the USAR aviation program, increased from 837 to 877. Of these, some 130 were called to active duty to serve with aviation units during the callup of the U.S. Army Reserve. The end fiscal year 1962 inventory of assigned aircraft remained below the minimum necessary to maintain minimum unit training standards and to support USAR aviation flight proficiency requirements. Additional aircraft are not scheduled for issue to the U.S. Army Reserve until fiscal year 1965. Meanwhile, the established program for contractual hire of civil aircraft has greatly assisted in maintaining the readiness of the USAR aviators.

Reserve Officers' Training Corps

The mission of the Senior Division Army Reserve Officers' Training Corps is to procure and train college students so that they may qualify upon graduation as commissioned officers in the Army of the United States. This is a major source of junior officers for the Regular Army, and annually furnishes a majority of such officers for the active Army and a substantial number for our reserve component units. The program also provides the trained individual officer reinforcements necessary to fulfill initial mobilization requirements upon declaration of an emergency and a pool for individual replacements.

Status of the Army ROTC and NDCC During 1962

Except for the withdrawal of two junior division units and the establishment of four new National Defense Cadet Corps units, the ROTC program remained unchanged. Currently participating in the program are 232 units at 247 institutions in the Senior Division, 40 units at 40 institutions in the Military Schools Division, and 90 units at 256 schools in the Junior Division. Total enrollment in the program approximates 252,000 cadets. Five hundred fifteen Senior Division cadets were enrolled in the Flight Training Program. The National Defense Cadet Corps Program includes 74 units at 106 schools with a total enrollment of almost 22,500 cadets.

Plan for 2-Year Senior Division Program

As a result of a comprehensive study and review of the Army ROTC program, the Army recommended to the Secretary of Defense the adoption of a new 2-year Senior Division ROTC program, including among other things, the following provisions: (a) On-campus instruction during the junior and senior years only; (b) two summer camps—

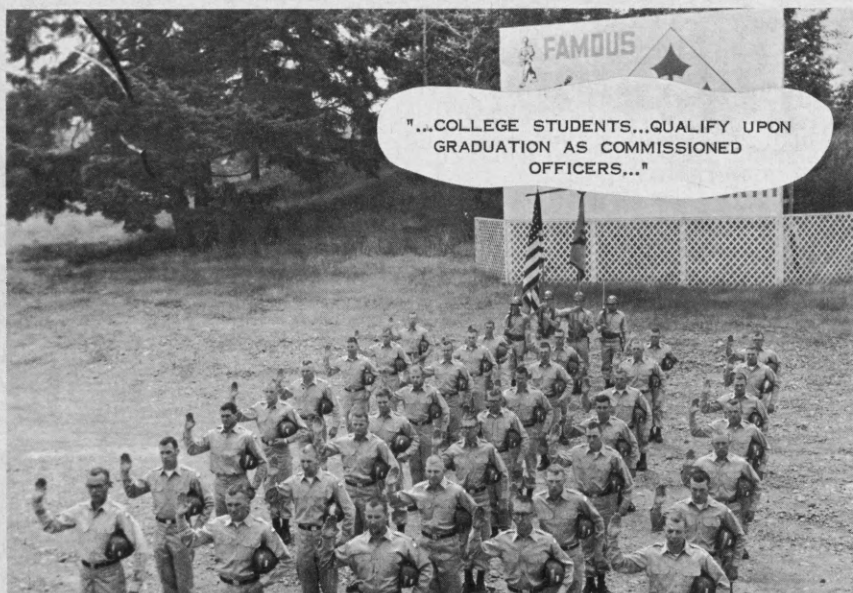


Figure 11.

one of 4 weeks' duration between the sophomore and junior years and one of 8 weeks' duration between the junior and senior years; (c) increased on-campus allowance to cadets; (d) an increase in the camp pay; and (e) reimbursement to colleges for each graduate commissioned. This program is generally in accord with the recommendations of the Army Advisory Panel on ROTC Affairs excepting the provision for two camps prior to graduation. Present plans indicate that one summer camp may be held prior to graduation and another camp may be held after graduation. The ROTC proposals of all Services are being reviewed by a Department of Defense ad hoc committee in an effort to make them more compatible.

Army National Guard Armories and Army Reserve Centers

Under the National Defense Facilities Act of 1950, National Guard armory construction is supported by Federal funds up to 75 percent of construction costs, and nonarmory projects are completely supported by Federal funds. Army Reserve facilities are supported solely from Federal funds. During fiscal year 1962, 101 National Guard Army construction projects were placed under contract, with a total Federal contribution of \$11.7 million. During the past fiscal year, nine nonarmory projects were placed under contract, with Federal funds totaling \$4.2 million, not including over \$1 million in minor

construction and planning. A study completed in 1959 reflected an over-all requirement for 2,732 armory facilities. At the end of fiscal year 1962, 665 of the National Guard requirement remained for future construction. During fiscal year 1962, there were 35 Army Reserve centers and 11 additions placed under construction, making a total of 46 projects at a value of \$11.7 million. Of the total requirement for 1,287 Army Reserve centers, 346 remained for future construction.

Plan for Reorganization of the Reserve Components

The One Army concept demands that the reserve forces must be organized to meet mobilization requirements. In order to increase the readiness of the Army, a plan was developed under the guidance of the Under Secretary of the Army to reorganize the reserve components consistent with the needs of a mobilized Army. This would entail the elimination of obsolete units and those for which no mobilization requirement exists. A streamlined, effective reserve would greatly enhance the capability for rapid mobilization. This plan includes the introduction into the reserve components of brigades organized under the ROAD concept.

Active and Reserve Component Reorganization

Significant progress was made in the Army's program for reorganization of its combat divisions. The reorganization program has the short title of ROAD and is designed to improve the organization flexibility, mobility, nuclear and non-nuclear balance, and the command and control structure of the Army's combat divisions.

One striking advantage which the ROAD organization offers is the ability to tailor the combat force to its mission and to the terrain in which it may fight.

The ROAD organizational structure was introduced into the active Army in February 1962, with the activation of the 1st Armored and 5th Infantry (Mechanized) Divisions. The 1st Armored Division, located at Fort Hood, Tex., was scheduled to be combat-ready by late August 1962. The 5th Infantry Division (Mechanized), at Fort Carson, Colo., was scheduled to be combat-ready by October 1962.

The experience gained and the lessons learned through the activation and training of these two new ROAD divisions will be of great value in the conversion of the remaining active Army divisions to the ROAD organizational structure. The conversion schedule for the remaining active Army divisions and the reserve component divisions will be based on the carefully phased time table to insure that a maximum state of readiness is maintained in all major commands at all times.

Civil Defense Role of the Army

National Fallout Shelter Program

In October 1961 the Army Corps of Engineers, supported by the Navy Bureau of Yards and Docks, initiated a two-phase nationwide fallout shelter survey as part of the over-all program of the Office of Civil Defense. The primary purpose of Phase I of the survey was to identify potential fallout shelter space in existing buildings. Phase I was completed at a contract cost of \$23 million.

Phase II contract work was initiated in the third quarter and should be completed during the first quarter of fiscal year 1963 at an estimated cost of \$32 million. The purpose of Phase II is to determine feasibility and cost of improving the protection, habitability, and capacity that can be achieved by modifications to selected potential shelter areas, and to survey selected special facilities, such as caves, mines, and tunnels. It is anticipated that existing acceptable shelter space for more than 50 million persons will be identified and that space for an additional 34 million persons can be provided through modifications to existing facilities.

Communications Support of Civil Defense

The Federal Government is responsible for assisting State and local governments in the event of a disaster by furnishing continuing information on the developing situation. The Army provides, upon request, communications equipment and circuits in support of civil defense and natural disaster emergencies.

Reserve Role in Civil Defense

The mission of the reserve components relative to civil defense is identical to that of the active Army. The over-all responsibility of the Army relative to civil defense is to be prepared to conduct emergency operations in support of civil authorities under conditions of disaster resulting from a massive nuclear attack on the United States.

Army and reserve component support of civil authorities in a civil defense emergency is considered a responsibility second only to combat operations.

Plans are being prepared for distribution of military civil defense plans to all reserve component units which may reasonably be expected to implement plans in the event of an attack.

The training program for fiscal year 1962 includes 11 hours of civil defense training for officers of reserve component units, 10 hours for the key noncommissioned officers, and 8 hours for the remaining enlisted personnel.

Promotion of Rifle Practice

The Elihu Root Medal and membership on the honorary National Civilian Rifle and Pistol Teams will be awarded this year for the first time. The medal and the honorary teams were established last year by the National Board for the Promotion of Rifle Practice in order to give recognition to civilians who excel in rifle and pistol shooting.

The presentations will be a yearly event and will go to those who attain the highest scores at the National Trophy matches at Camp Perry, Ohio. This year's awards will go to the high scorers from the 1961 matches.

The medal is named for the man who, in 1903, signed the order initiating the mission of the National Board for the Promotion of Rifle Practice. Secretary of War Elihu Root recognized the need for this organization to assist in the promotion of rifle marksmanship among U.S. citizens not reached through armed forces training programs. He not only approved of special legislation being presented to Congress, but when this legislation failed to pass, he consented to have the substance of it incorporated into the Army appropriation bill. Today the Secretary of the Army has assigned to him by law the responsibility for training civilian marksmen. He appoints prominent individuals, both civilian and military, to the board to assist him in this mission.

The program is not a sports activity, for, in the words of Army Regulation 920-15, its mission is to encourage practice "for the purpose of training the citizenry in the use of military-type small arms, particularly to the end that those individuals who may be called upon to serve in time of war will be qualified as instructors and marksmen, and to create a public sentiment which emphasizes the necessity of marksmanship training with military-type individual small arms as a means of national defense."

Individual winners of the Elihu Root Medal and the governors of their home States will be notified in writing by the Under Secretary of the Army, President of the National Board for the Promotion of Rifle Practice. This is the first award of the board to be presented on a state rather than a national level.

III. Army Continental Air and Missile Defense Forces

During the past year all remaining active Army AJAX units were either converted to NIKE-HERCULES or phased out. The Army National Guard continued as an active partner in the CONUS air defense system by manning 69 NIKE-AJAX batteries.

At the end of the year the Army force structure included more than 200 NIKE batteries committed to CONUS air defense. This figure includes active Army HERCULES and National Guard AJAX operational batteries. These batteries were deployed in defense of 30 vital areas encompassing more than 300 communities in 30 States.

Surface-to-Air Weapons Systems

The primary fire distribution systems and missiles in the air defense weapons family are—

Electronic Fire Distribution Systems

MISSILE MASTER is an automatic air defense artillery fire distribution and direction system developed by the Army to integrate all elements of air defense in a defense area—from target detection to target destruction.

MISSILE MONITOR, designed to integrate air defense for NIKE and HAWK units assigned to tactical forces, was developed concurrently with MISSILE MASTER. The principal difference between the two systems is the mobility of the MISSILE MONITOR and its greater flexibility for Army air defense in a theater of operations. MISSILE MONITOR is now operational with the Army forces overseas.

BIRDIE (Battery Integration and Radar Display Equipment) is an electronic fire distribution system which was developed to meet the needs of small and medium defenses where the use of the larger MISSILE MASTER is not necessary or practical. Eighteen systems are presently operational in continental air defense.

NIKE-HERCULES

NIKE-HERCULES is the second generation of the NIKE family. During recent years new developments have significantly increased its effectiveness. A “mobility package” was developed, tested, and

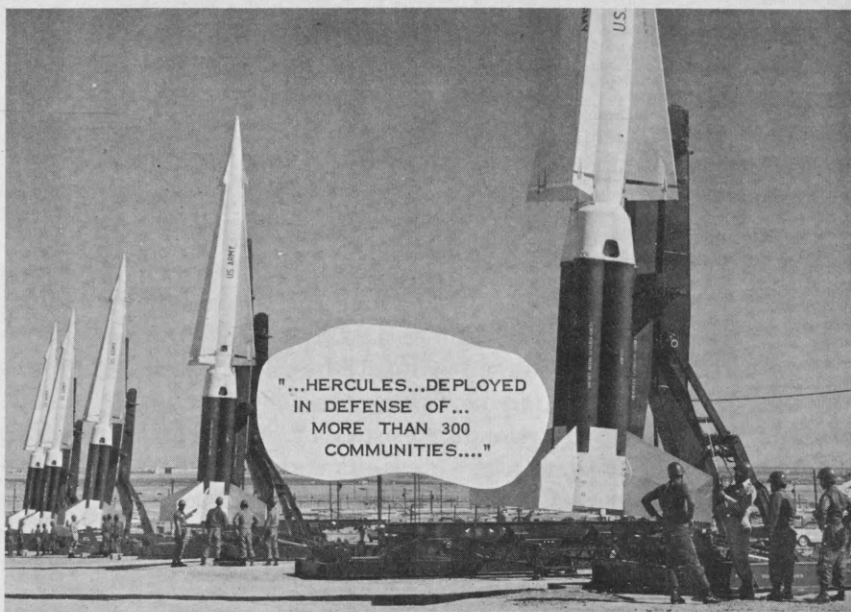


Figure 12.

approved. This package includes items and modifications which greatly improve the mobility of the system, thereby increasing its capability for field army air defense operations. The addition of new and more powerful radars has extended the capabilities of HERCULES to include the most advanced airborne targets.

HAWK

HAWK is primarily a field army air defense weapon. It was designed to be effective against low-level, high-speed targets in an ECM (electronic countermeasure) environment, and in a fast moving tactical situation. HAWK has demonstrated an antimissile capability by destroying LITTLE JOHN, HONEST JOHN, and CORPORAL missiles. During fiscal year 1962, HAWK units were deployed to Korea, Okinawa, and Germany.

NIKE-ZEUS

The NIKE-ZEUS guided missile system is the most advanced system under development in the free world for the interception of an ICBM.

A test model of a NIKE-ZEUS system has been deployed to Kwajalein Atoll, where it has recently made the successful intercept of a special target vehicle launched by an ATLAS ICBM from California.

Air Defense Training

Training at the Air Defense Center during fiscal year 1962 was limited almost entirely to NIKE-HERCULES and HAWK. In addition, National Guard Air Defense units conducted 76 NIKE-AJAX practices at McGregor Missile Range in New Mexico. Specialist training was conducted by Ordnance, Signal, and Corps of Engineers at the schools and centers of those services.

Unit training was continued under the package concept. This concept brings together the school-trained technicians and the individual fillers from Army training centers. A unit personnel package is formed at the Air Defense Center, Fort Bliss, Tex., where training is completed and the first missile firings are conducted prior to unit deployment. Reserve training consisted of unit and replacement training for National Guard on-site units and summer encampments for National Guard units. Additionally, a large foreign air defense military training program continued throughout fiscal year 1962.

An improvement in annual NIKE practice firing has taken place through the introduction of target simulators. These simulators will make it possible to conduct a majority of the NIKE annual practice firings at Fort Bliss without using live targets and will effect monetary savings as well as provide realistic training.

IV. Management of Resources

Equipment

The 1961 Berlin crisis dramatized the Army's acute shortage of critical equipment. Early in fiscal year 1962, Congress passed the largest peacetime defense appropriation to that time. The Army was authorized to procure \$2.6 billions' worth of modern equipment and missiles—\$1.0 billion more than in fiscal year 1961. Most of the funds were required to offset losses to inventory caused by consumption, wear-out, and obsolescence; to provide for the production capability of new items; and to cover certain other fixed costs such as first destination transportation. The remaining funds were used to continue modernization of the Army's combat forces by providing a balanced annual increment to reduce the shortage between the current assets and the worldwide inventory objective.

Requirements

The Army has a continuing large dollar requirement each year for the replacement of equipment lost due to consumption and obsolescence. This must be met before a notable increase in equipment quantity can be achieved. Additional funds are required in order to build up the equipment inventory to the 22-division base requirement. As the implements of modern warfare increase in complexity and cost, requirements for funds will increase. This is a price the Nation must be prepared to pay to maintain a modern Army capable of meeting any emergency.

Because the Army must be able to deploy either large or small forces anywhere in the world, its materiel requirements are complex and include hundreds of thousands of items, and, in many instances, hundreds of thousands of each item.

Major items of materiel used by the Army include weapons, combat vehicles, missiles, aircraft, and support items. Materiel requirements are the essential types and quantities of equipment for successful performance of missions and tasks assigned to the Army.

Procurement

The fiscal year 1962 procurement program emphasized increased combat and mobility capability by providing conventional and nuclear

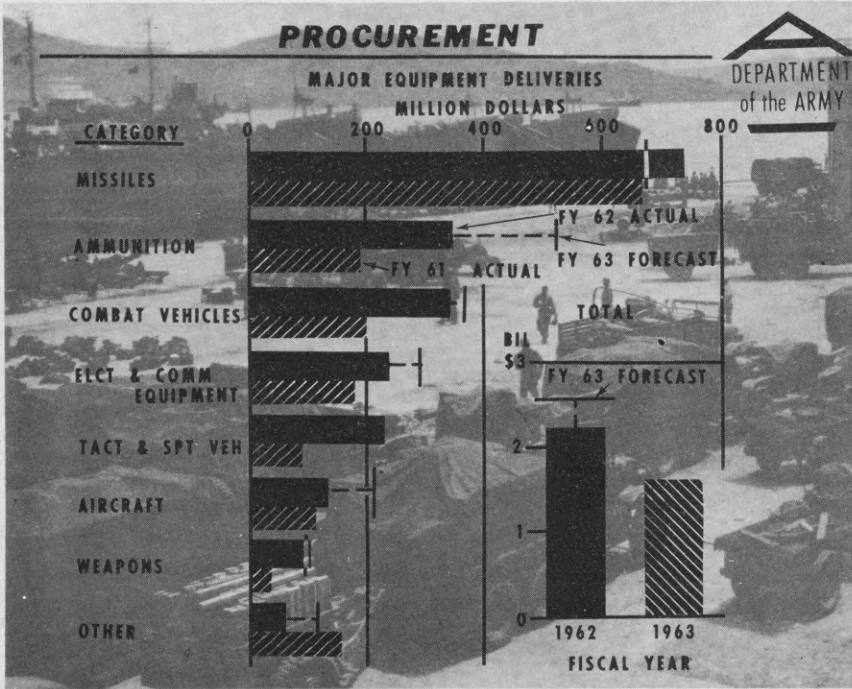


Figure 13.

weapons and by accelerating procurement of personnel and reconnaissance carriers, aircraft, tactical trucks, and trailers. In the electronics and communications area the major effort was directed toward the provision of reliable, lightweight, rugged, and mobile equipment to achieve the high degree of mobility and dispersion dictated by modern weapons.

Production deliveries of materiel, including items for customers outside the Army, were valued at over \$2 billion (see fig. 13).

PRODUCTION DELIVERIES*

Fiscal Year 1962

(Millions of Dollars)

Missiles, Ammunition, Weapons	1,179
Combat, Tactical, and Support Vehicles and Aircraft	706
Electronics and Communications Equipment	238
Other	62
Total Production Deliveries	2,185

*Includes items for non-army customers.

It is anticipated that fiscal year 1963 deliveries will exceed the 1962 figure by approximately \$315 million. The greatest increase will be in ammunition deliveries, which are expected to be 50 percent more than the 1962 total and only about 22 percent less than missile deliveries. There will also be a substantial increase in aircraft, electronics equipment, and other heavy equipment.

New items procured for the first time this year include the AN/PRC-25 pack radio set, which provides an increased capability over the three pack sets it replaces. Initial orders were placed for the new 105mm. and 155mm. self-propelled howitzers, the T-114 armored reconnaissance vehicle, the XM-72 rocket grenade, and the T-379 155mm. cartridge. First production deliveries began for the AN/VRC-12 vehicular radio set; a tropospheric scatter radio system for support of the PERSHING missile; an airborne infrared surveillance system; the M-67, 90mm. recoilless rifle; the M-91, 115mm. multiple rocket launcher; and the M-85, .50-cal. machinegun.

Direct Procurement of Aircraft

During fiscal year 1961 the Army was authorized to procure direct from industry "off the shelf" aircraft (certified as air worthy by the Federal Aviation Administration). The first application of the authority was in fiscal year 1962, when the Army contracted for the purchase of five types of aircraft, three of which were for the Military Assistance Program. Long-range plans provide for increased direct procurement of aircraft and modernization of Army aviation by the development of multipurpose craft of fewer types to replace the multitude of special- and limited-purpose aircraft now in the Army inventory.

Procurement Management

The modernization objectives of the Army require efficient and economical materiel acquisition.

It has been determined that early availability of complete procurement data will widen competition for production contracts. The Army is making a determined effort to assure data availability. The advance planning and systematic review of existing research and development contracts and programed requirements for fiscal year 1963 indicate that competitive procurements will increase 18 percent in dollar value.

Reemphasis of existing breakout, value analysis, and procurement cost reduction programs has resulted in savings. A breakout of the NIKE-HERCULES ready-round transporter, for example, saved \$1.1 million through competition which included the original developer.

Under the Procurement Cost Reduction Program across-the-board actions on contractual performance have accounted for substantially reduced procurement costs. For the reporting period from December 1960 through October 1961, these cost reductions amounted to about \$222 million. Additionally, profit incentives have been stressed for better contract performance at the lowest cost to the Government. Full use of incentive contracts and deemphasis of cost-plus-fixed-fee contracts have been directed.

To improve cost estimating techniques, independent detailed government cost estimates are now required prior to seeking proposals for research and development contracts of high dollar value. Also, documentary evidence of contractor cost performance is used in determining contract awards.

Small Business

The Department of the Army has long recognized the important role of small business in providing quality products on a timely basis. The President and the Secretary of Defense have emphasized also the importance of small business concerns to both the Defense establishment and the national economy.

Army agencies, including those transferred to the Defense Supply Agency in January 1962, were able to award \$2.12 billion in prime contracts to small business concerns in fiscal 1962, which represents a 35 percent increase over 1961 and a 39 percent increase over 1960. The contracts awarded to small business concerns, on a prime contract basis, represented 30.3 percent of all contracts placed by the Army with both large and small business concerns.

Maintenance

Materiel readiness of the Army depends to a great extent upon how well the maintenance function is performed. In addition to the maintenance performed by the troops, \$667 millions' worth of Army equipment was overhauled this year at depots and contractors' plants. In addition, \$365 millions' worth of equipment was overhauled for shipment to countries participating in MAP and for the other military Services.

Operation ARM

Operation ARM (Army Ready Materiel) was started during the year, with the objective of improving materiel readiness. It consists of 24 actions which include establishing more meaningful standards to determine the over-all combat effectiveness of a unit's equipment and developing an inspection and reporting system which will determine the materiel readiness of a unit.

One of the key elements of the reporting system will be the integrated Army Equipment Record Maintenance Management System. This system provides a more simplified, uniform method for recording and reporting the condition of selected items of major equipment in the hands of troops, worldwide. The system evolved from plan TAPER (The Army's Plan for Equipment Record Revision), which was developed last year and successfully tested during the first half of fiscal year 1962. The Army in the field will be reporting under the new system by December 1962, and the system will be completely implemented by December 1963.

U.S. Army Aeronautical Depot Maintenance Center

An Army facility for depot maintenance of Army aircraft was activated in March 1961 as the U.S. Army Aeronautical Depot Maintenance Center at the Naval Air Station, Corpus Christi, Tex., and production was begun in July 1961. This center provides a much-needed increase in the Army's base for technical training. It also serves as a base that can be readily expanded in case of mobilization. Since the center opened, approximately \$21 millions' worth of materiel has been restored to serviceable condition.

Modernization

The modernization objective of the Army is to provide new items of equipment for the active forces and the reserve components. It is a continuing program which reflects application of current technology and industrial capability to our combat capability. An orderly replacement of the older items with new ones is then made on a priority basis. To meet the materiel objective at a satisfactory rate, the Army considers that the Procurement of Equipment and Missiles, Army (PEMA) budget should be at an increasing level for the next 5 years, above the appropriation for fiscal year 1962. Because of increasing costs and the greater complexity of equipment, PEMA budget requirements may be even larger after this 5-year period.

Storage and Distribution

There were many competing demands in 1962 for the Army's equipment assets. In addition to the need to modernize the equipment in the hands of troops, there were the buildup of the Army, increased MAP requirements, and the southeast Asia situation. These equipment requirements were met by issues from available stocks, direct deliveries from manufacturers, and by redistribution from lower priority units of the active Army and reserve components. As a result, the Army provided equipment in sufficient quantities to permit minimum essential training of the reserve forces called to active duty

and the two newly organized divisions. In addition, MAP requirements were met, materiel to support combat operations was prepositioned throughout the world, and equipment was made available to American and allied forces in southeast Asia.

Military Standard Requisitioning and Issue Procedure (MILSTRIP)

The Army also completed plans to implement the Department of Defense Military Standard Requisitioning and Issue Procedure on July 1, 1962. This procedure will standardize the requisition form and other related supply documents used throughout the military Services. It also will establish a uniform system of supply priorities to insure equitable distribution of common supplies among the military Services. This standardization will not only simplify the requesting of supplies by Army units in the field, but also will simplify requisitioning of supplies from the other Services and from the Defense Supply Agency (DSA).

Property Disposal

During the first of the year, the Army continued to operate 16 of the 34 Consolidated Surplus Sales Offices which have the mission of selling surplus personal property in the United States for all the military Services. Effective January 1, 1962, responsibility for operation of all 34 of these offices was transferred to DSA.

The Army retained responsibility for operating the property disposal holding activities at Army installations, including the preparation of surplus property for sale and the actual disposal by means other than sale, such as redistribution, transfer, donation, abandonment, and destruction.

The responsibility for disposal of foreign excess personal property in oversea areas remains with the Army. The Army disposed of surplus and foreign excess personal property with an acquisition cost of \$1.3 billion. Proceeds from sales amounted to about \$60.9 million. The total cost of conducting disposal operations including demilitarization of military items and the production and harvesting of timber products was about \$24.0 million.

Research and Development

The Army devoted over a billion dollars to the critical research and development area.

Research and development long-range planning is continually improved to tie in forecasts of the state of science and technology with the Army's future requirements, looking toward possible battlefields

as far as 20 years in the future. The first such R&D long-range plan was completed in October 1961.

To facilitate expansion of Army research efforts in Latin America, the Army completed arrangements for the establishment of an Army research element in the Defense Research Office in Rio de Janeiro, Brazil. Other such offices are in Europe and the Far East.

The objective of this activity is to broaden the scientific base of Army research programs by using such unique talents and opportunities as exist overseas.

Limited War Laboratory

In June 1962 the U.S. Army Limited War Laboratory was activated at Aberdeen Proving Ground, Md. The mission of the laboratory is to meet requirements for fast development of new specialized weapons and materiel, particularly for guerrilla, counterguerrilla, and counterinsurgency operations. Specialized chemical, electronics, and biological facilities, experimental fabrication shops, and a library devoted to limited war publications will be provided. The laboratory also will use R&D talent and facilities available throughout the Army and industry.

The staff will be weighted heavily toward imaginative engineering talent since the emphasis of the laboratory is on applied research. This makes the lab a "quick response" organization, to answer urgent demands from the field which cannot be met by field expedients. Small, simple items will be the projects to be completed in months rather than years. Large, complex weapon system projects will continue to be developed through the normal channels of the Army Materiel Command.

Physical Sciences Research

Materials Research

A detailed investigation was conducted by the Army Materials Advisory Committee covering all materials research being done in-house and under various Army contracts. These research efforts have been organized into seven controlled programs and correlated, for the first time, with the Army's technological forecasts. As a result, much information will be exchanged directly by investigators working on similar problems. Some shifts in emphasis will be made, and several apparent gaps in the program will be investigated. Significant achievements of Army research activities are highlighted.

Two samples of material breakthroughs by the Army research program are highlighted here.

A practical process has been found for producing one of the principal components of nitroso rubber, a material recently discovered by a

joint Army-university-industry research program, and action has been started to obtain larger quantities of this rubber for extensive tests. It has unusual properties of resistance to rocket fuels and oxidizers, oil, ozone, and weathering, in addition to being flexible at low temperatures and nonflammable. When fully developed, this material could be useful for chemical-resistant coatings, seals and gaskets of fuel-handling equipment, and a base for nonflammable paints.

Much technical progress was made during the year on the development of the LASER (Light Amplification by Stimulated Emission of Radiation) which is simply described as an improved kind of radio or radar that uses light beams. Although this device is in a very early stage of development, its use of much higher frequencies than ordinary radio or radar gives it a number of potential advantages—higher communication capabilities at reasonable power levels, better detail in radar detection and navigation, more accurate missile guidance and control, and major improvements in night warfare.

Medical Service Research and Development

The Army has established a comprehensive 5-year Medical Service Research and Development Program to meet its medical support requirements for any type war. Up to now, the medical research program, supported by a relatively fixed budget, has been planned on an annual basis. The program now provides for an accelerated effort in medical support of worldwide combat operations, particularly in remote and underdeveloped areas. Increased funding, beginning with a \$7 million addition to the fiscal year 1962 medical budget, is planned through 1967.

Though undertaken for purely military reasons, the program will result in widespread benefits through the better understanding and treatment of disease.

The principle of the fluid amplifier, for example, was applied successfully to the construction of an experimental heart pump, in a cooperative effort by the Army's Diamond Ordnance Fuze Laboratories and the Walter Reed Army Institute of Research. The pump provides a close duplicate of human heart function, and has all the necessary qualities leading to reliability and ease of use. The possibility of damage to the blood cells is greatly reduced by the elimination of all moving parts except artificial ventricles and tricuspid valves. Surgeons and medical researchers have been favorably impressed by demonstrations on living animals.

Environmental Sciences

Research and development in the environmental sciences is directed toward improving the Army's capability to move, fight, communicate,

and protect troops from natural hazards of global environments, wherever troops may be committed. During 1962, particular analyses were devoted to potential limited war areas, like southeast Asia. Study emphasized such critical factors as extreme temperatures and temperature-humidity combinations, precipitation, insect pests, vegetation, native sources of food, and soil and surface conditions—factors directly applicable to pressing problems of design, testing, storage, and use of Army equipment and to the environmental protection of troops. Special studies and publications were completed on the construction of airfields in remote areas.

Ground Mobility

Considerable progress was accomplished on a system for predicting vehicular surface mobility, by using environmental data. Special studies of the behavior of sand and clay, for example, determined basic differences in soils which dictate the need for various types of tires, inflation pressures, and methods of vehicular drive. With the use of Advanced Research Projects Agency (ARPA) funds, and under ARPA's direction an environment vehicle field study in southeast Asia was initiated on ground mobility in these and other wet tropical regions.

Meteorology

An experiment has been designed through which a better knowledge of the statics and dynamics of the atmosphere could be obtained. This would provide basic information applicable to small-scale weather forecasting and to many Army operational activities affected by the properties of the atmosphere. The cost is too great for the Army to support by itself. Because of wide interest in various aspects of such an experiment, the proposed design has been submitted to the Interdepartmental Committee on Atmospheric Sciences for consideration as a national research effort.

Meteorological teams supporting Army research and development were established at Huntsville, Ala., and Ft. Wainwright, Alaska, reflecting the continually increasing requirements for meteorological research. A meteorological rocket network was expanded and is being considered in connection with the idea of a complete operational network, under the auspices of the U.S. Weather Bureau.

Cold Regions Research

This was the second year of operation of Camp Tuto near Thule, Greenland, and the nuclear-powered Camp Century, which is 138 miles inland on the icecap. These installations supported year-round research activities in this extremely cold polar environment.

The first foamed-plastic houses ever set up in the field, in the "buildings in barrels" concept, were set up in the ice tunnel near Camp Tuto and at Camp Century. They are lightweight, impervious to moisture and fungus, and have good heat insulating properties. A similar building set up as an exhibit at a conference of the Society of the Plastics Industry in Chicago in February 1962 won the Grand Prize for the Best Application of Reinforced Plastics.

The Army Research and Development Office, Alaska, was activated on July 1, 1961, at Fairbanks, Alaska. It coordinates research and development activities in that area. An accelerated research program was started in Alaska with 5 research contracts with the University of Alaska and 16 in-service projects.

The Corps of Engineers' Snow, Ice, and Permafrost Research Establishment was moved from Wilmette, Ill., to Hanover, N.H., and combined with the Corps of Engineers' Arctic Construction Frost



Figure 14.

Effects Laboratory to form the Cold Regions Research Engineering Laboratory. The new laboratory provides the finest facilities in the world for cold regions research.

Desert and Tropical Research

An Army-wide project on desert research was established. The existing tropical areas research program was accelerated with the establishment of the U.S. Army Research and Development Office in

the Canal Zone and the initiation of a broad program of research in this humid tropical environment.

Social Science Research

Recent emphasis on special warfare and remote area operations has placed increased requirements for social sciences information. Consequently, a symposium on this subject was held in March 1962, bringing together representatives of the Department of Defense and other Government agencies, with key social scientists from the universities. The meeting was to bring about better understanding in the academic community of the Army's missions and needs for social sciences research. As a result of the symposium, a working-level coordination group has been formed of Government and university scientists, working on related social science projects, to achieve a more effective use of the research now under way.

Air Mobility

The Army this year stepped up development of air vehicles to improve the tactical mobility of combat forces.

In the field of helicopters, the first successful flight of the twin-turbine CH-47A Chinook was made. This advanced helicopter can carry 3 to 5 tons of payload faster and more efficiently than other currently used helicopters.

The Chinook is designed for simplified field maintenance and will have long-life components to reduce support requirements.

Machin-gun and rocket systems for arming light helicopters were moving along in development. The UH-1B helicopter, for example, can be armed with six antitank missiles which can attack tanks from distances of over 2,000 yards away.

Development continued on VTOL airplanes which may replace certain helicopters, while also providing new means of improved target acquisition and surveillance.

The XV-4A research aircraft, the Hummingbird, for example, will be the first jet aircraft made especially for the Army. Using a unique ejector principle to augment and deflect vertically the thrust of two conventional jet engines, the Hummingbird will be able to fly at subsonic speeds for the purpose of exploiting the capability of this propulsion approach to providing a VTOL surveillance and target acquisition aircraft.

In addition to the XZ-5A fan-in-wing and the P-1127 German-British-U.S. vertically rising jet, which are research aircraft to explore other competitive propulsion approaches for surveillance, target acquisition, and strike missions, the Army, Navy, and Air Force are cooperating in developing three vertically rising research transports.

The main effort is the tilt-wing XC-142 which is designed to take off vertically or conventionally carrying up to 6 tons of payload.

For Special Action Forces, two steerable parachutes were developed which will permit SAF teams to parachute into small, otherwise inaccessible, areas from altitudes of 500 to 30,000 feet.

Army Rockets and Missiles

HONEST JOHN and LITTLE JOHN will provide the bulk of large rocket support to frontline divisions. The surface-to-surface HONEST JOHN is in the field, in a model with longer range and lighter weight than the previous model.

LITTLE JOHN is an extremely simple rocket that has already proved its reliability as a lightweight mobile supplement for medium and heavy artillery support of troops.

Surface-to-surface missiles SERGEANT and PERSHING are almost operational. These new solid-fueled missiles are simpler, more reliable, and more mobile than their predecessors CORPORAL and REDSTONE. This second generation of rugged, all-weather nuclear missiles will give the field army and corps commanders a much improved nuclear capability.

Guided missiles for air defense, in various stages of development, range from the shoulder-fired REDEYE missile (which company-level units will be able to use against low-flying aircraft) to the mighty NIKE-ZEUS antimissile missile which has, in various tests, demonstrated its capability to knock down incoming test vehicles.

The NIKE-HERCULES, now replacing the NIKE-AJAX anti-aircraft weapons in many U.S. communities, is being given improved radar detection equipment to make it more effective against short-range tactical missiles and small high-speed targets.

Development continued successfully on HAWK, MAULER, and REDEYE. HAWK can destroy medium- and low-flying aircraft and cruise-type missiles. MAULER is being developed as a mobile self-propelled air defense guided missile system. REDEYE, a shoulder-fired guided missile, using a built-in heat-seeking device that guides the missile to heat radiated by target aircraft, has completed several shoulder-launched test firings against drone aircraft.

Efforts toward improving fire control for the defensive use of missiles were given several boosts. Production began on Field Artillery Digital Automatic Computers (FADAC), which permit fast transmission of firing data and control of artillery units.

Miniature transistorized distance-measuring devices have been developed which can measure distances over 40 miles in 30 minutes.

Authority to develop the Field Army Ballistic Missile Defense System (FABMDS) to be a mobile defense against tactical missiles was asked.

Antitank Weapons

The SHILLELAGH missile, under development, completed some test firings. It is being designed for use against armor and field fortifications and to give close-in support of troops.

The M-72 antitank rocket was tested this year by several NATO countries for possible use as a NATO standard item. Work is continuing on development of a more powerful, long-range model.

Individual Weapons

A new project was begun, seeking to develop a hand weapon to combine and improve upon the M-14 rifle and the M-79 grenade launcher. This concept promises to increase dramatically the effectiveness of the individual soldier.

Artillery

Development is nearly completed on two lightweight self-propelled howitzers, the 105mm. T195E1 and the 155mm. T196E1, and procurement has begun. These are aluminum armored and, by using the same chassis, they will require lessened logistic support requirements.

Two other 105mm. howitzers that can be airdropped are under development. One, the unarmored XM-104, weighing 7,300 pounds, is not only self-propelled, but also amphibious. The other, the XM-102, is a towed weapon. Both of these weapons are extremely lightweight, with the XM-102 weighing about 3,000 pounds, which is considerably less than the weight of the presently used standard model 105mm. howitzer.

Using new ammunition, these new weapons will be more lethal, and they will have greatly increased range.

Combat and Logistical Vehicles

The GENERAL SHERIDAN armored assault vehicle underwent tests and firings, and prototype construction moved ahead. This vehicle will be amphibious and airdroppable.

A T-114 armored reconnaissance carrier was put into limited production to provide increased mobility for key command personnel and reconnaissance units.

For economical rugged hauling and over-all utility, the Army relies upon its wheeled vehicles. Progress in this field includes the following:

—a new 11¼-ton cargo truck and ambulance entered development;



Figure 15.

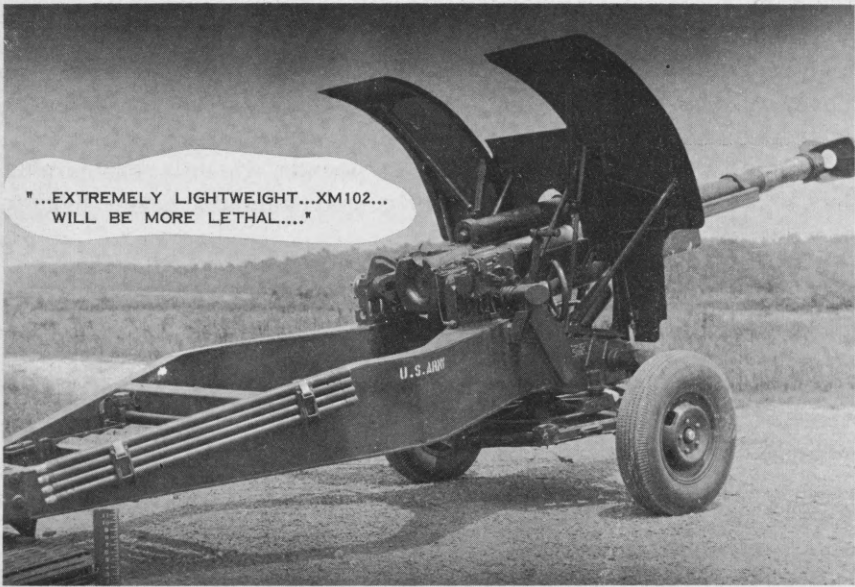


Figure 16.

- a multifuel engine was put into the current model 21½-ton truck;
- the standard 5-ton truck will soon have a diesel engine; and
- the promising all-terrain design of GOER vehicles brought procurement of 50 GOERs for user tests.

Chemical and Biological Weapons and Defense

Research and development in this field have been on a continuing basis. Many items of equipment have been produced, notably a chemical nerve agent alarm, already being bought by the Army. This item is capable of warning instantaneously of chemical nerve agent attack.

The over-all program was integrated into an Army-Navy-Air Force team effort. The first 5-year plan for tri-Service research and development in this field was subsequently set up under Army coordination. The plan stresses defensive items.

Communications and Electronics

During the year development began on a lightweight radio transmitter and receiver for use at the platoon and squad level, as part of the family of frequency modulation (FM) sets for tactical forces. This equipment consists of a separate transmitter and receiver with a total weight of less than 2 pounds and a range of 1 mile. The transmitter is hand-held and the receiver can be mounted on the standard Army helmet or fastened to the soldier's clothing in various ways.

In addition, a new aircraft set of the Army (FM) family, radio set AN/ARC-54, completed engineering tests in April 1962 and is expected to go into production in 1963. These FM radios greatly increase flexibility by making voice channels available to all users—infantry, artillery, and armored units.

For long-range tactical application, the Army proceeded on the development of high frequency single sideband radio sets. Engineering tests of a 50-mile voice set and a 100-mile voice set are underway. Much lighter in weight than the AM high frequency radios they will replace, these sets will provide improved long-range voice communications.

In strategic communications, the Army has made excellent progress in the development of the Universal Integrated Communications System (UNICOM). UNICOM was designed to provide a worldwide military strategic communication system providing much faster, more reliable, and more secure communication from the President, the Secretary of Defense, and the Joint Chiefs of Staff to major military com-

mands throughout the world. The proposed production for the development of a 5-station test network could provide the nucleus for the worldwide system to be operational during 1965. The Army program has been approved by the Secretary of Defense as the basic effort to develop automatic electronic switching for the Defense Communications System. Through its management and development responsibilities for Department of Defense and NASA communications satellites ground environment, the Army furthered the Nation's effort to determine the feasibility of extending and enhancing our long-line communications using satellites in orbit around the earth.

Surveillance

For the past several years a high priority development program has been in progress to give the field commander a capability for area-wide combat surveillance and target acquisition. Many types of both ground-based and airborne equipment are now in use or under development. These systems vary from the ground surveillance radar, used at company level, to the more complex long-range airborne surveillance systems for use at division or higher headquarters.



Figure 17.

Currently available to active divisions of the Army are these: A family of three ground surveillance radars for detection of moving vehicles and personnel; a mortar-locating radar; radar and camera

sensors for standard Army aircraft; and a small drone for photographic missions. Still in research and development are second-generation ground surveillance radars that are smaller, lighter, and more accurate. An artillery-locating radar is also being developed to pinpoint enemy batteries for effective first-round counterbattery fire.

Of significant interest was the decision to expedite technological breakthroughs in the night vision art. With relatively lightweight and simple devices, such as night vision aids, the illumination provided only by ambient starlight can be used to permit soldiers to move and shoot at night.

The USD-2 drone system, still in development, is planned to give the field commander a means for surveillance and target acquisition under virtually all conditions of weather and visibility.

Airborne systems are also being developed which are capable of accurate three dimensional locations of targets in unmapped areas.

International Cooperation Projects

Despite disadvantages of control over execution, difficulties of negotiation, and the problems of establishing production, our international cooperation program continues to yield great advantages to the Army. The program is based on an awareness that the United States has no monopoly on scientific talent and that this program is reciprocal.

Acting on the expressed desire of the Secretary of Defense to increase international cooperation in research, development, test, and evaluation and expand the Mutual Weapons Development Program into the Far East, the Army has proposed establishment of a Defense Development Exchange Program. This program aims at encouraging Far Eastern countries to employ their experience, skill, and facilities for developing weapons and materiel more suitable to their environment, soldiers, and warfare than those the United States has supplied. This objective would be accomplished mainly by data exchange and technical assistance.

As a result of this proposal, the Department of Defense authorized the Army to send a 10-man survey team to the Far East to gather specific information on capabilities and to make suitable recommendations on the program. The team visited Australia, Singapore, Malaya, Thailand, Vietnam, Philippines, Republic of China, Japan, and Korea. The team's recommendations to establish an exchange program with Japan, China, Philippines, Korea, and Malaya, and accelerate R&D cooperation with Australia are now under active consideration by the Office of the Secretary of Defense.

In the field of standardization among the armies of the United States, United Kingdom, and Canada, 25 materiel items developed by one of the member countries were adopted as standard for both of the other countries. Standardized were the U.S. Army's 155mm. self-propelled howitzer by the United Kingdom and Canada; the U.S. Army's 8-inch howitzer and HONEST JOHN weapon system by the United Kingdom; Canada's vehicular navigation aid by the United States, and the U.S. Army's air defense guided missile system (HAWK) by Canada.

The three armies presently are sharing in the development of 17 priority items. One of these, the British Hawker V/STOL aircraft (P-1127) may eventually be used by all three U.S. Services. The Federal Republic of Germany is also assisting in this development.

Nuclear Progress

Nuclear Power

Significant progress was made in developing both stationary and mobile nuclear powerplants during the past year.

Stationary powerplants located in Alaska, Antarctica, and Wyoming were completed in 1962. This brings the total number of military operating land-based powerplants to five—three to be operated by the Army and one each by the Navy and the Air Force.

Design of a 10,000-kilowatt barge-mounted plant was started during this period, with procurement anticipated in 1963. The first air- and trailer-transportable nuclear powerplant was completed and is presently undergoing testing.

Development was initiated on a military compact reactor, an advanced air- and trailer-transportable plant, which is to be much lighter than a similar diesel power system.

To reduce further its petroleum requirements, the Army is presently studying the feasibility of a nuclear-powered energy depot system, in which a military compact reactor is used with locally available materials to manufacture vehicle fuels in the field.

Nuclear Testing

The resumption of nuclear testing, both underground and atmospheric, by the United States should materially increase the Army's capabilities in nuclear warfare. Tests were conducted by the Atomic Energy Commission in the Pacific and at the Nevada Test Site, both to prove weapons already developed and to investigate new designs and concepts. These tests will lead to the development of advanced Army weapon systems for support of ground troops and for anti-missile defense.

The high altitude testing schedule for Johnston Island should produce nuclear weapons effects information of importance to the ZEUS development. Many of the weapons effects projects being conducted at Johnston Island and the Nevada Test Site are being executed for the Department of Defense by Army laboratories.

Preparations were nearly completed for the Army's first nuclear tactical exercise in which maneuvering troops would be supported by nuclear weapons.

Personnel Management

The Berlin crisis required such bolstering of Army strength that three major personnel actions were carried out:

—Approximately 113,000 reserve component personnel reported to active duty, beginning in September 1961;

—Selective Service calls were increased from September through January; and

—A 4-month retention program was begun.

As a result of these actions, Army strength peaked in January 1962 at almost 1,114,000 and then dropped to a June 30 level of 1,066,400. This year-end strength consisted of 960,600 active Army personnel and 105,800 reserve component personnel recalled to active duty.

Military Personnel

The ratio of officers to enlisted men was about 1 to 9, as the text table indicates:

<i>Category</i>	<i>Strength</i>
Enlisted Personnel.....	948, 600
Officers (Male and WAC).....	101, 400
Warrant Officers.....	10, 800
Nurses and Medical Specialists (Officers).....	3, 900
Cadets.....	1, 700
Total.....	1, 066, 400

In keeping with the pressing requirements for a high level of operating forces, the Army's operating forces comprise 66.7 percent of total strength (see fig. 18).

The active Army maintained a high ratio of regular enlisted strength to total strength. The over-all Army reenlistment rate reflected a fiscal year gain of four percentage points (see fig. 19). This was the net result primarily of the large number of reenlistments from the reserve components, and of the following:

—No-prior-service enlistments went from approximately 116,000 last year to 128,000—an increase of about 10 percent, and

—Draftee reenlistments increased by 8.5 percentage points, while Regular Army rates dropped about 5 percent.

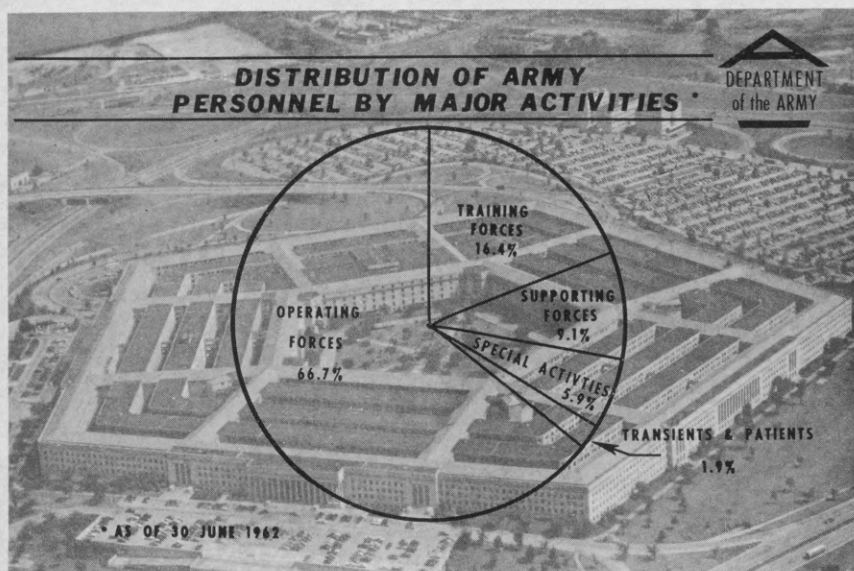


Figure 18.

Because of the large number of Reserve and National Guard personnel involuntarily called to active duty, the Regular Army percentage of the active Army dropped 10 percent (see fig. 19) even though enlistments and reenlistments had improved. This picture was expected to improve sharply with the release of approximately 96,000 involuntarily recalled reserves in August 1962.

A total of 27,567 officers was added to the roster during the year. Procurement by source of these officer gains is shown in the text table.

Officer Procurement

<i>Source</i>	<i>Gains</i>
U.S. Service Academies.....	537
Reserve Officer Training Corps.....	11,992
Officer Candidate School.....	608
Professional (appointments in JAGC, MSC, WAC, CHAP).....	742
Medical Corps, Dental Corps, Veterinary Corps ¹	2,339
Voluntary Active Duty.....	1,343
Regular Army Appointments (from civil life).....	39
Reservists Involuntarily Recalled with Units.....	8,349
Miscellaneous ²	164
Nurses and Medical Specialists ¹	403
Warrant Officers.....	1,051
Total.....	27,567

¹ Excludes reservists involuntarily recalled to active duty.

² Inter-Service transfers, returned from disabled retired list, etc. Includes 12 reimbursables.

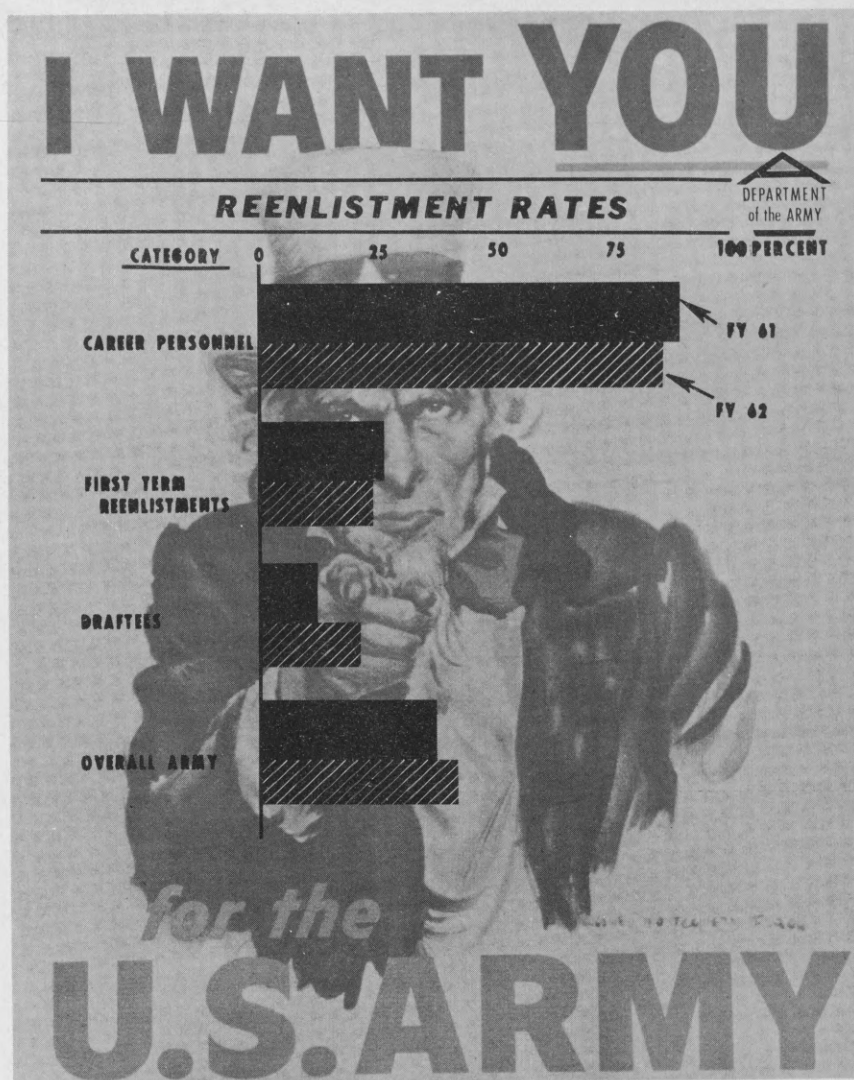


Figure 19.

Of the officers gained, a net increase in Regular Army commissioned officer strength of 1,082 was the result of a gross procurement of 2,688 regular officers, obtained from the following sources:

U.S. Service Academies	537
Regular Army Appointments (from civil life)	39
ROTC Distinguished Military Graduate Program	1,070
Active Duty Integration Program	1,042
Total	2,688

Retaining enough junior officers after completion of an initial tour of duty was a serious problem, as the retention rate dropped from 37.1 to 33.8 percent. The Army has set as its goal a retention rate of 35 percent as a minimum.

Retention Policies During Buildup

The Army used three methods for involuntary retention of experienced enlisted personnel during the callup:

- Terms of service of certain soldiers were extended by 4 months;
- Most early releases were suspended; and
- Certain voluntary retirements were deferred.

To reduce losses of officers, the Army, first, placed temporary restrictions on releases, voluntary retirements, and resignations; and second, extended terms of service of about 3,000 reserve officers on their initial obligated tours. All ROTC officers serving in a 6-month active duty training status were called to active duty for a year.

A return to normal policies later made it possible to release all personnel retained involuntarily during the buildup, except that those junior officers called to active duty for a year were to be retained for the full year.

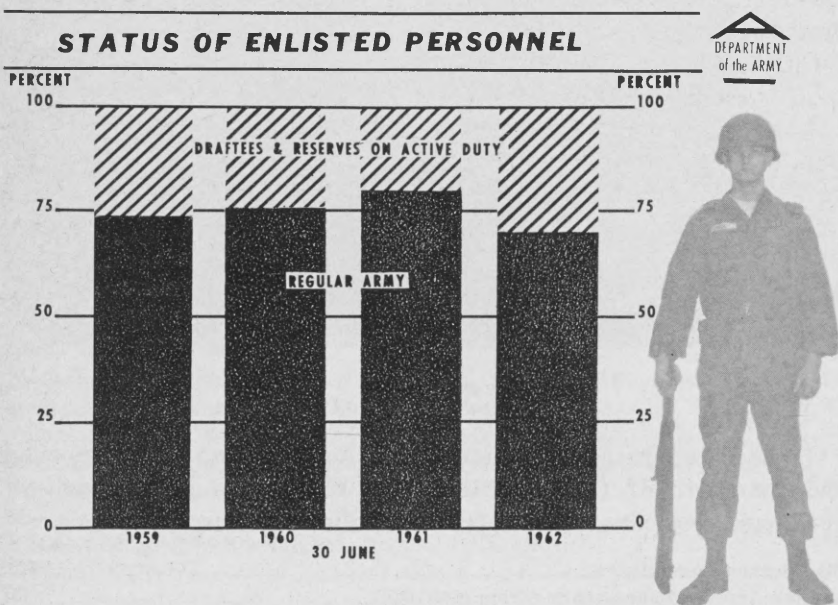


Figure 20.

Stabilization of Assignments

The Berlin situation required maximum personnel stability and a reduction of oversea replacement requirements. Thus, tours in the continental United States were reduced, oversea tours were extended, terms of service were involuntarily extended, and restrictions were imposed on retirements.

To meet increased requirements for enlisted personnel with critical skills, particularly in Europe and southeast Asia, the guaranteed continental United States tour was temporarily reduced to 9 months, although most enlisted personnel continued to serve a U.S. tour of at least 18 months.

Officer Management

A new Intelligence and Security Branch was authorized, bringing the number of career branches in the Department of the Army to 20. This branch will provide for the continuous availability of officers in the field.

Enlisted Management Program

The Enlisted Evaluation System and the Proficiency Pay Program were completely phased-in this year. These efforts use the results of tests to determine individual qualification for proficiency pay, verification of proficiency and military occupational specialty, and enlisted promotions.

During the year, 340,000 individuals were given Military Occupational Speciality (MOS) evaluation tests.

The Proficiency Pay Program is used to provide incentives for retention of enlisted personnel in critical occupations and of personnel who have demonstrated outstanding performances in any assigned skill.

Over 85 percent of these awards were in critical specialties, and 15 percent in outstanding performance categories. In some of the most critical skills, however, the award is insufficient to induce retention.

In effect at the year's end were 67,668 P-1 awards of \$30 per month and 16,035 P-2 awards of \$60 per month.

General Educational Development Program

The GED Program has continued to increase the educational level of the individual soldier with over 40,000 personnel completing high school and nearly 550 receiving college degrees in fiscal year 1962. Two hundred thirty-two persons received advanced degrees.

In this over-all program, an average of 150,000 (about 15 percent of Army strength) participated.

Women's Army Corps

The Women's Army Corps (WAC), as an integral part of the active and Reserve forces, responded to the requirements of the emergency callup through increased enlistments, recall of reservists, and extensions of service. No-prior-service enlistments rose to 3,417.

At the peak of callup strength, the WACs numbered about 10,000, which was the highest since the end of the Korean conflict. The year-end strength was over 9,500, of which over 800 were officers and warrant officers, and about 8,700 were enlisted women.

The WAC continued to seek the highest quality personnel for direct commissions and enlistments. Progress was made in obtaining enlisted women with high aptitudes for training and use in the Army's occupational areas through improved application of the Army Classification Battery tests to screen WAC applicants.

A survey made in November 1961 revealed that 87 percent of enlisted women have scores of 90 or higher in four or more aptitude areas of the Army Classification Battery. This is up markedly from the figure of 69 percent in June 1960.

WAC detachments were authorized this year for Yuma Test Station, Ariz.; White Sands Missile Range, N. Mex.; and Fort Rucker, Ala. These last two commands had not previously used WAC personnel.

The WAC in May 1962 observed its twentieth anniversary, and, with this milestone, original members who are still in service become eligible for retirement.

Civilian Personnel

At the end of the year there were about 505,700 civilians employed by the Department of the Army—approximately 1 for every 2 in uniform, and considerably down from approximately 911,000 in 1953. Nearly 150,000 of the total were non-U.S. citizens, of whom almost 106,000 were employed by contract with foreign host governments. Total civilian strength increased 3,421 for the year, the first increase since fiscal year 1952.

To fill civilian manpower needs, special recruitment measures included selective use of paid advertising, use of central career referral systems, and reemployment priority lists for staffing new installations.

Increasing recruitment difficulties were encountered in staffing high grade administrative, engineering, and scientific positions, with Fed-

eral pay limitations apparently a significant factor in this recruiting difficulty.

Management Interns

Continued high-level interest in this program, which is designed to recruit and train potential executive talent for the Army, resulted in an increasing demand for interns.

While Government-wide competition for interns from the Management Intern Option of the Federal Service Entrance Examination has greatly intensified, the Army has secured a number with high potential. Interns from the 1962 group have been placed in the Office of the Secretary of the Army, various components of the Army Staff, and several field activities. Progress has been made in acquainting greater numbers of operating personnel with this means of getting top-quality managerial, administrative, and technical personnel to fill future executive level vacancies.

Career Programs

At the close of the year, eight Army-wide civilian career programs were in operation, covering 45,000 employees in key occupational fields.

During the year four additional career management programs, covering scientists and engineers, education and training specialists, quality control technicians, and equipment specialists, were being developed. These programs are scheduled for implementation in 1963 and will provide Army-wide career management coverage for an additional 32,000 employees.

Having a definite career program helped in acquiring over 875 college graduates for engineering and scientific fields during the year. Over 600 vacancies at the senior and executive levels were filled through referral and placement systems requiring Army-wide competition.

Secretary of the Army's Research and Study Fellowships

The Secretary of the Army's Research and Study Fellowships continued to provide opportunities for full-time study and research on significant problems in special fields of importance to the Army. Nine fellowships were granted during the year.

Specific projects, proposed by applicants, offer greater potential benefits to the Army in such areas as physical sciences and engineering, biological sciences, administration and management, social sciences, and education.

Pay Management

During the year the Army installed a new approach to job classification—position management. Classification experts, in addition to their traditional function of fixing pay rates for jobs, will now act as consultants to managers on job design to achieve fuller use of employee abilities.

The Army designated a task force which studied problems encountered in administering pay systems in Panama. It developed a wage plan which is expected to reduce the differential between U.S. and Panamanian wage rates. The first of three wage adjustments became effective on April 1, 1962.

Civilian Personnel Mobilization Exercise

During the year, the Army conducted a limited exercise to test the capability of its civilian work force to operate under mobilization and postattack conditions.

General direction and evaluation of the exercise were carried out through key civilian officials of participating activities. The exercise used hypothetical situations and problems which might exist after a thermonuclear attack on the continental United States. Representatives of the Department of Labor and the Civil Service Commission were assigned to each installation to participate. Experience gained during the exercise provides a firm basis for improving the Army's ability to support military action following a nuclear attack.

Personal Activities

Medicine and Health

The Army's health continued at a favorable level. The amount of time lost from duty because of illness or injury was at the lowest level in Army experience. On an average day only 11 soldiers out of every 1,000 in the Army were absent from duty for medical reasons.

Admission to hospitals and quarters, for all causes, were less than the record low rate for 1961—down to 311 per 1,000 troops per year.

A major problem which was accentuated by the Berlin buildup was the shortage of medical personnel. The special provisions of the Universal Military Training and Service Act were used to obtain physicians, dentists, and veterinarians to meet minimum professional requirements. To offset the shortage of commissioned nursing personnel, a broader group of activities for qualified enlisted medical specialists was undertaken.

Disciplinary Action

The absent without leave (AWOL) rate for the year was higher than that of the previous year, rising from 45.2 per 1,000 to 49.2 per 1,000.

Prisoners in confinement remained at 4.8 per 1,000, near the low level reached in 1960 after steadily dropping from 12.9 per 1,000 strength in 1955.

Of those released from confinement, over 20 percent returned to honorable duty status.

The court-martial rate per 1,000 strength declined to an average of 70.0 from 71.4 per 1,000 in 1961. This rate, like that of confinements, was maintained, notwithstanding an increase from 62,400 to about 71,250 in courts-martial in 1962, caused by the increase in over-all strength brought about by the Berlin buildup.

Savings Bonds

Both civilian and military personnel continued to participate in the Army Savings Bond Program at a high level. Over 50 percent of civilian employees bought bonds, while military allotments for purchase of savings bonds reached a peacetime high of 512,800 accounts, or about 48 percent of the June 30, 1962, Army strength.

Safety Program

The Army's achievements in controlling accidents continued to earn nationwide recognition, winning the President's Safety Award of 1961 and the National Safety Council Award of Honor.

Actions to improve safety training included stressing safety belts, good driving practices, and care of vehicles. A career program for civilian safety personnel was established, and training in the safety aspects of nuclear weapon systems and their use was intensified.

Automatic data-processing was set up to keep track of accident experience. This effort increased the speed and accuracy of reporting and the flexibility of data evaluation and provided faster identification of problem areas and remedial action.

Soldiers' Deposits

At year's end, nearly 208,000 enlisted personnel had on deposit about \$30.5 million in the Soldiers' Deposits System. Interest is paid at the rate of 4 percent per annum on all funds which have been deposited at least for 6 months.

Chapels and Attendance

Army chaplains conducted almost 471,000 group religious services, and 167,000 religious education sessions were held. There were nearly 77,000 character guidance lectures conducted. Thirteen new chapels were completed, bringing the total number to approximately 880.

Commissary Stores and Post Exchanges

On June 30, 1962, there were 74 commissary stores operating in the continental United States and 99 overseas (including Alaska and Hawaii). Total sales were about \$317 million, an increase of \$31 million over the previous year.

Profits from the Army and Air Force Exchange Service provided \$28.3 million for support of Army recreational activities. Total cost of recreational activities supported from nonappropriated funds activities was \$54.4 million.

The Army is reducing significantly the number of military personnel engaged in these operations.

Facilities and Installations

The Army manages more than 1,600 installations in the continental United States, of which more than 200 are major installations. These encompass a land area of more than 10 million acres, while Army installations overseas number over 1,300, encompassing approximately 622,000 acres.

Inactivation and Reactivation of Installations

A program to evaluate current and foreseeable requirements for all Army facilities continued during the year. Over 300 Army real estate holdings were evaluated with resultant decisions to inactivate or declare as excess all or portions of 40 installations and activities. There are 36 additional facilities still under study.

Major active installations were expanded to accommodate the buildup of Army strength in the fall of 1961. Installations which were reactivated included Ft. Polk, La.; Ft. Chaffe, Ark.; Jefferson Proving Ground, Ind.; Louisiana Ordnance Plant, La.; and Indiana Ordnance Plant, Ind.

Army Construction

Despite a continuing decline in construction funds, the Army provided a modest increment of facilities construction.

Of the total of \$176 million active Army and reserve component new construction starts, \$147 million were for the active Army and

were located mainly in the United States. Foreign base projects supporting Army oversea operations were about 7 percent of the total. This was consistent with the President's policy regarding the international balance of payments.

Construction completions for the active Army totaled \$216 million. Typical projects included medical facilities at Ft. Eustis and Ft. Lee, Va., barracks for 526 cadets at the U.S. Military Academy, and a barracks complex for 652 men at Ft. Huachuca, Ariz.

Family Housing

The continuing shortage of adequate family housing remains a problem, as the availability of such housing is a prime factor in maintaining individual efficiency and morale. The following text table shows that, based upon a strength of 960,000, there is a substantial worldwide deficit of family housing facilities of nearly 63,000 units. The Army's 1963 construction program calls for only some 1,600 units to reduce only slightly the approximately 63,000 unit deficit.

FAMILY HOUSING REQUIREMENTS AND DEFICIT

(Fiscal Year 1962)

	<i>Units</i>
Worldwide family housing <i>REQUIREMENT</i> -----	291, 500
Assets available to meet needs:	
Adequate family housing (beginning of year) and community housing-----	193, 100
Contracts let during year for new units-----	3, 300
Additional local community housing-----	32, 500
Total-----	----- -228, 900
Approximate end of year <i>DEFICIT</i> -----	62, 600

Congress has favorably considered two legislative enactments which will significantly affect utilization of available adequate community housing. An increase in the basic allowance for quarters for all personnel above the grade E-4 with 4 or more years experience should make additional housing available compatible with the increased ability of military personnel to pay rental. In addition, extension of a Government leasing program will alleviate hardships for military personnel stationed in high rental metropolitan and urban areas, where rental rates may exceed the financial ability of some military personnel to pay. It is expected that these actions will have a favorable impact on the reenlistment rate.

Construction for Other than Army

In addition to its regular civil works and military construction for the Army, the Corps of Engineers supervised other construction

valued at \$1.4 billion, of which \$608 million was placed under contract during the year. While major contracts were for the construction of Air Force ICBM bases, including three new MINUTEMAN bases, the value of new construction starts in the regular Air Force construction program approximately equaled the value of new starts for the Army.

The Director of the National Aeronautics and Space Administration selected the Corps of Engineers to design and construct facilities at the Atlantic Missile Range, Fla.; the Mississippi Test Facility; the Manned Spacecraft Center, Houston, Tex.; and the Edwards Air Force Base, Calif. Construction of a \$45 million highway program in Afghanistan was supervised for the Agency for International Development.

Reorganization of Army Construction Activities

The Army Corps of Engineers completed a reorganization to improve performance of its military construction activities in line with rapidly changing military construction programs. The number of Engineer districts performing military construction was reduced from 31 to 19, with significant savings of \$13 million per year, including a reduction of over 1,600 employees.

Maintenance and Management of Facilities

Costs of local maintenance and management of Army facilities approximated \$630 million for the year. These costs cover maintenance, repair, and modification of real property, both active and inactive, and include utilities service, fire protection, master planning, engineering services, and payment of rents. Despite an increase in the total active square footage of building space from 942 million to 962 million and a general upward trend in the costs of materials and salaries, funds for these activities were not increased. This resulted in an increase in the facilities maintenance backlog, from \$116 million in fiscal year 1961 to \$118 million in fiscal year 1962 and a further projected increase to \$120 million in fiscal year 1963.

Real Estate Management and Disposal

During fiscal 1962 the Army disposed of 68,843 acres with improvements having an original cost of \$97,277,953 and reported as excess to the Government Services Administration an additional 29,000 acres along with improvements having an original cost of \$202,370,851. An area of 1,240,383 acres, temporarily not required for military purposes, was outleased, and receipts in the amount of \$5,817,961 were deposited in the U.S. Treasury. Limited new land acquisitions for Army Reserve Centers were made.

Real Estate Acquisition for Other Than Army

The Army functions as real estate agent for other Government agencies. Approximately 9,000 land tracts were acquired for the Air Force, principally to support the ICBM program. In support of NASA, the Army acquired some 1,000 land tracts for expansion at Cape Canaveral and started acquisition of 142,000 acres in Mississippi and Louisiana for the Mississippi Test Site.

Transportation

Worldwide ocean cargo movements totaled almost 8 million measurement tons, an increase of 1.5 million tons over last year. The increase was caused by the deployment of troops and equipment in response to the Berlin and southeast Asia crises. All but a fraction of this amount was also moved by surface transportation. There were 660,000 passengers moved overseas.

Budget and Funds

Obligation Authority—Fiscal Year 1962

The Army's total obligation authority in fiscal year 1962 was \$12.747 billion compared with \$10.527 billion for the previous year. The increased funds were for support of major improvements in readiness for both limited and general war. More specifically, they were used primarily for increased active duty strength; improved

RESEARCH, DEVELOPMENT, TEST AND EVALUATION-BUDGET PLANS

IN MILLIONS
OF DOLLARS



CATEGORY	ACTUAL		PLANNED
	FY 1961	FY 1962	FY 1963
TOTAL	\$ 1,121.8	\$ 1,203.2	\$ 1,319.5
MISSILES AND RELATED EQUIPMENT	532.8	511.2	453.4
OTHER EQUIPMENT	152.7	177.2	271.9
MILITARY SCIENCES	121.6	151.4	200.4
ORDNANCE COMBAT VEHICLES & RELATED EQUIPMENT	100.9	119.6	159.2
MILITARY ASTRONAUTICS & RELATED EQUIPMENT	55.2	103.0	95.0
AIRCRAFT AND RELATED EQUIPMENT	55.6	70.0	63.2
PROGRAM-WIDE MANAGEMENT AND SUPPORT	102.1	70.1	71.3
MILITARY FAMILY HOUSING	-	-	3.8
SHIPS AND SMALL CRAFT & RELATED EQUIPMENT8	.7	1.2

Figure 21.

operational readiness; accelerated modernization in PEMA programs and further augmentation of PEMA inventories of combat and support equipment; and support of increased level of effort in a variety of research, development, and test and evaluation activities. (See fig. 21.)

Despite the over-all increase in funds, some activities such as adequate day-to-day maintenance of our installations had to be deferred to provide resources for expansion of other activities more directly related to combat capabilities.

New Approach to Costing of Army Programs

The basic decisions on the Army's budget request for fiscal year 1963 were made within the framework of a new program and budget procedure which relates cost to principal military missions as well as to functional areas.

Obligation Authority—Comparison of Fiscal Years 1962 and 1963

The following table shows a comparison of planned Army total obligation authority by program for fiscal year 1963 compared with total obligation authority for fiscal year 1962.

DEPARTMENT OF THE ARMY TOTAL OBLIGATION AUTHORITY (Millions of Dollars)

<i>Program</i>	<i>Fiscal Year</i>	
	<i>1963</i>	<i>1962</i>
Continental Air and Missile Defense Forces-----	285. 6	227. 5
General Purpose Forces-----	5, 986. 5	6, 352. 3
Airlift and Sealift Forces-----	32. 3	31. 1
Reserve and Guard Forces-----	1, 209. 8	977. 8
Research and Development-----	1, 267. 8	1, 149. 5
General Support-----	3, 480. 1	4, 009. 0
Total -----	12, 262. 1	12, 747. 2

Continental Air and Missile Defense Forces

The increase in obligation authority in fiscal year 1963 includes funds to enhance the operational capabilities of the NIKE-HERCULES batteries. This includes procurement of additional NIKE-HERCULES missiles to increase the number per battery and procurement of high-power radar and associated equipment. Budget plans also provide that an increasing share of the NIKE-HERCULES force will be assigned to the Army National Guard for on-site operation.

General Purpose Forces

Funds were provided in the appropriation for fiscal year 1962 for an end strength of 1,008,000 active duty forces.

The greater total obligational authority in fiscal year 1962, compared with that for fiscal year 1963, was primarily to improve Army combat readiness and increase personnel, and support for the two National Guard divisions and supporting units ordered to active duty October 15, 1961. Continuation of the 73,100 strength increase through the end of fiscal year 1962 was estimated to add 52,000 man-years to the average strength. A supplemental appropriation for additional obligational authority of \$115 million is necessary due to the increase in active duty strength to 1,081,100.

Reserve and Guard Forces

The increase in obligational authority in fiscal year 1963 is in accordance with Congressional appropriations requiring the programming of those forces to attain a 700,000 end-of-year paid-drill strength. The major part of this increase is to support a 6-month training input of 182,500 Reserve Forces Act trainees. In fiscal year 1962, the number of RFA trainees totaled 86,500. Another increase in fiscal year 1963 is due to the return of reservists who had been on active duty up to 9 months in fiscal year 1962 and less than 2 months in fiscal year 1963.

Research and Development

Army's basic and applied research efforts were broadened in fiscal year 1962 and efforts were expended on improvement of the Army's limited war capability, development of the NIKE-ZEUS antimissile missile, and the air mobility program. The fiscal year 1963 total obligational authority provides for further broadening of Army basic and applied research efforts and continued development in fixed-wing and helicopter aircraft and on all types of ground vehicles.

General Support

The fiscal year 1962 total obligational authority included funds for support of an increased strength. The reduction in total obligational authority requirements in fiscal year 1963 is due primarily to the reduction in military personnel strength, as the reservists were released from active duty, and to related actions. Realignment of functions within the Department of Defense also contributes to the reduction. Functions realigned include the transfer to the Defense Supply Agency of the Military Traffic Management Agency, the Military

Clothing and Textile Supply Agency, the Military Subsistence Supply Agency and the Military General Supply Agency. The fiscal year 1963 program, however, is funded to provide continued support to the Defense Supply Agency in the areas of materiel storage and distribution.

Net Expenditures

The Army's expenditures increased from \$10.1 billion in fiscal year 1961 to \$11.4 billion in fiscal year 1962. Estimated expenditures for fiscal year 1963 are \$12.0 billion.

International Balance of Payments Deficit

The Army's programs to curtail expenditures overseas made a direct contribution to the correction of the unfavorable U.S. international balance of payments. Oversea commands supported the programs by reducing expenditures of appropriated and nonappropriated funds affecting the U.S. international balance of payments and by encouraging individuals to reduce personal expenditures in the local economies.

The program for reducing military expenditures overseas will continue.

V. Military Assistance and Civil Affairs

The role of the Army in assisting our allies is demonstrated by its \$56 million Military Assistance Training Program. In 1962 the Army trained personnel from 74 nations, 18,000 of whom participated in formal school training, on-the-job training, and training at American universities. In addition, over 1,000 key foreign military personnel visited Army installations. Also, assistance and advice is provided through this program to allied service schools in numerous MAP recipient nations.

Training in antiguerrilla warfare was conducted for personnel in the Far East at a cost of \$32 million. Mobile training teams were dispatched to provide indigenous personnel training in counterinsurgency tactics in the particular conditions of their native countries. In the past year, the effectiveness of this training was highlighted by the increased capability of the southeast Asia nations to resist Communist aggression.

Air defense missile training was provided personnel of nine nations. Germany, France, Italy, Belgium, and the Netherlands began a joint production of HAWK launchers and missiles. A phased cadre-type training program was scheduled to meet the European HAWK production dates. This training and other types of training were provided the European nations on a mutual security military sales basis. This cost-sharing policy spread to other European nations, and released a large portion of MAP grant aid funds for expenditure to other vital areas.

Counterinsurgency training was also provided Latin American countries in Army schools both in the continental United States and in Panama. Artillery, engineering, and maintenance were included in the training provided by mobile training teams and civilian contract teams. Civil affairs-civic action teams were sent to provide training in public health, sanitation, and civil engineering as part of the Army's growing role in the Alliance for Progress.

Training assistance began in Africa where mobile training teams, skilled in communication electronics, engineering, and other technical fields, were provided. In the United States, schools also provided training in special warfare, medicine, and maintenance. MAP funds

also support the training of U.S. personnel assigned to duty in MAAGs and missions in MAP recipient nations.

In addition to military benefits, the large-scale training of foreign military personnel in Army schools contributes to an attitude of international cooperation through the good will extended to MAP trainees. As the armies of our allies are transformed into modern forces, the Military Assistance Program is strengthening the friendships between American military personnel and the future military leaders of free nations around the world.

Military Assistance Program

The Army during fiscal year 1962 provided logistical support to 58 nations and international organizations under the grant aid and military sales programs.

Grant Aid

The value of grant aid materiel and logistical services supplied totaled \$721 million, of which \$508 million represented materiel deliveries and \$213 million represented logistical services.

MILITARY ASSISTANCE GRANT AID DELIVERIES

(Millions of Dollars)

Tanks and combat vehicles.....	61
Artillery and weapons.....	25
General and special purpose vehicles.....	87
Ammunition	63
Missiles and rockets.....	54
Electronics and communications equipment.....	31
Repair parts.....	90
Construction equipment, petroleum products, industrial equipment, supplies, and a variety of soft goods.....	97
Total	508
Logistical services, including military public works, support of weapons production, transportation, packing and crating, repair and rehabilitation, and miscellaneous.....	213
Total	721

Military Sales

In addition to giving grants of materiel and logistical services, the United States conducted an active effort to encourage sales of military equipment to friendly nations. Materiel sales alone increased from about \$103 million in 1960 and \$137 million in 1961

to over \$500 million in 1962, while the net increase in materiel sales and logistical services was over \$570 million for the year.

In an effort to ease the U.S. gold outflow, outright grants in aid have increased only slightly, while sales deliveries have increased sharply, from \$118 million to \$181 million. This helps alleviate the balance-of-payments deficit.

MILITARY ASSISTANCE SALES DELIVERIES

Fiscal Year 1962 v. 1961

(Millions of Dollars)

	FY 1961	FY 1962
Missile and rocket systems.....	14	75
Tanks and combat vehicles.....	55	38
Ammunition	9	25
Repair Parts.....	16	20
Other	24	23
Total	118	181

Military Assistance in Africa South of the Sahara

In July 1961, the Secretary of Defense directed the Army to administer military assistance in Africa south of the Sahara. The responsibilities of this assignment are similar to those usually connected with a unified command's MAP responsibilities. At present, nine African nations receive military assistance, and it is anticipated that MAP in this area will expand in the near future.

International Development Program

Under the International Development Program (formerly known as Civilian Aid), the Army supported the Agency for International Development (AID) in providing materiel valued at about \$30 million to approximately 25 countries.

Civil Affairs

In 1962, the U.S. Army was faced with increased challenges in the broad field of civil affairs. The additional emphasis placed on this important function was a direct result of the Army's increased commitments in various theaters.

Civil Administration of Ryukyu Islands

One of the most important activities of the Army in this field is supervision of the civil administration of the Ryukyu Islands.

Vigorous efforts were made to give greater responsibilities to the Ryukyuan people and to further their economic development. In reporting to the President early in 1962, a task force recommended that there be a significant increase in U.S. economic and technical assistance to the Ryukyus. Pursuant to these recommendations, the President announced that he would ask the Congress to raise the ceiling on economic assistance to the Ryukyus and to appropriate additional funds for this purpose. The Army proposed legislation to raise the aid authorization from \$6 million to \$25 million annually, the latter figure to facilitate programing for fiscal year 1964 and thereafter in a new 5-year plan. Also proposed was an amended fiscal year 1963 appropriation request including \$12 million for aid and \$2.3 million for the administration and operations of the U.S. Civil Administration of the Ryukyus. At the end of the fiscal year, Congressional action on both these requests was pending.

Formal negotiations between the Governments of Japan and the United States were initiated, to achieve agreement on the specific area and extent of Japanese financial assistance to the Ryukyus. The appointment of a civilian as the civil administrator (who serves as the high commissioner's principal assistant for the civil administration) received widespread and favorable publicity throughout the Far East.

The President made it clear that there was no basic change in the international status of these islands, and that the United States would maintain full control over them for the foreseeable future, in view of their strategic importance for the security of the United States and of the entire free world.

Units for Civil Affairs

To insure that units to support civil affairs activities are available to field commanders, the active Army includes one civil affairs group and two civil affairs companies, ready for immediate deployment to any area of the world. These units were supplemented this year by the activation of another civil affairs unit, capable of assisting an indigenous government in carrying on its activities.

Civic Action

The Department of the Army participates in the Department of Defense broad program of civic action. This program encourages military forces of the developing nations to assist in the economic and social development of their peoples. This program is based on the premise that indigenous military forces may be used on projects, useful to the local population at all levels, which contribute to economic and social development.

Since the objective of civic action is to weld together an effective civil-military team, it is an essential part of the counterinsurgency



Figure 22.



Figure 23.

program, aimed at preserving or providing stability for an area, countering Communist-promoted insurgency, and improving relations between the military and the civilian populations.

Many countries in Latin America, the Middle East, and southeast Asia have been given assistance in developing civic action projects. The Department of the Army provided mobile teams to Guatemala, Laos, Vietnam, Iran, Ecuador, El Salvador, and Korea, to assist the local governments and their military departments in developing and implementing civic action programs. As a result of this guidance and assistance, indigenous military units of these countries are engaged in activities which improve living standards, help alleviate poverty and suffering, and show the people that their military forces and the government which they represent are concerned with their welfare as well as with their security.

In Ecuador, for example, a pilot program to help alleviate rural area problems has begun to make significant progress in improving drinking water, roads, air strips, schools, etc.

VI. Civil Works

The Federal Civil Works program embraces projects for the development of the water resources of the United States, Puerto Rico, and the Virgin Islands in the interest of navigation, flood control, hydroelectric power, water supply, and related purposes, which Congress has authorized for accomplishment under the direction of the Secretary of the Army and under the supervision of the Army Chief of Engineers. This work has been carried out for 138 years since 1824. In the River and Harbor and Flood Control legislation since that time, Congress has delineated the policies, prescribed the procedures, and authorized the water resources development which constitute the present civil works program.

Major Policies and Plans Developed

The President approved in May 1962 a revision of Policies, Standards, and Procedures in the Development and Use of Water Resources to meet present and future needs. These standards provide new approaches to the analysis and development of water resources projects, including implementation of his previously emphasized policy regarding the importance of economic growth and the need for full and efficient long-range development and conservation of land and water resources.

A revised joint Army-Interior policy was adopted for the acquisition of lands for reservoir projects. This assures an adequate interest in land for all authorized purposes, including recreation, and fish and wildlife.

The Corps of Engineers participated in planning and other work of the Area Redevelopment Administration and of the Urban Renewal Administration; and concurrently participated with the Federal Council for Science and Technology, and with the National Academy of Sciences, in a review of Federal research activities in natural resources.

An agreement was worked out with the Secretary of the Interior on division of responsibility for the planning and construction of proposed multiple-purpose reservoirs in the Columbia and Missouri River Basins and in Alaska.

Procedures were developed for applying the provisions of the Federal Water Pollution Control Amendment (Public Law 87-88),

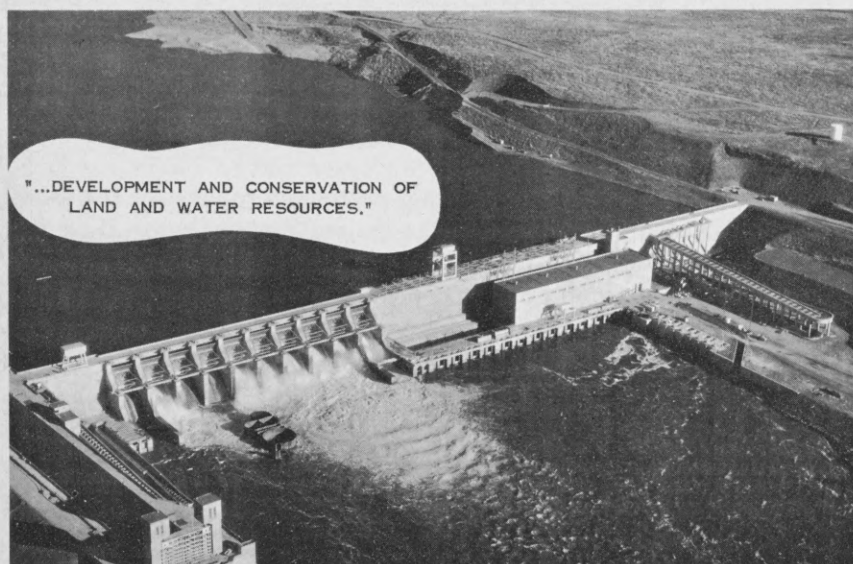


Figure 24.

July 20, 1961, which states that in the planning of reservoirs, consideration will be given to the inclusion of storage for water quality control. This legislation also directed that up to 30 percent of project cost may be allocated to anticipated future water supply storage demands where State and local interests give assurances that such demands will be made within a period of time which will permit payment of costs allocated to water supply within the life of the project.

Appropriations

Funds appropriated to the Corps of Engineers for fiscal year 1962 totaled over \$975 million. These funds were allocated as follows:

	(Thousand Dollars)
Construction, General.....	724, 022
Planning and Design.....	14, 851
Construction	709, 171
Operation and Maintenance, General.....	147, 297
Mississippi River and Tributaries.....	72, 950
General Investigations.....	125
Planning and Design.....	0
Construction	54, 845
Maintenance	17, 980
General Expenses.....	13, 148
General Investigations.....	15, 877
St. Lawrence River Joint Board of Engineers.....	20
Navigation Congresses Meeting.....	30
Permanent Appropriations (Maintenance and Operation of Dams; Hydraulic Mining; Payment to States).....	1, 785
Total	975, 129

Construction Program

During fiscal year 1962 construction was under way on the variety of projects listed below :

Type of Project	Number Under Construction During Year	Number Placed In Useful Operation During Year
NAVIGATION:		
Channels and Harbors.....	92	30
Locks, Dams, and Canals.....	17	2
Bridge Alterations.....	5	3
FLOOD CONTROL:		
Reservoirs.....	62	8
Local Protection.....	87	29
MULTIPLE-PURPOSE, INCLUDING POWER.....	26	6
SHORE PROTECTION.....	5	1
Total.....	294	79

Summary of Accomplishments

Cumulative accomplishments of the program are indicated below :

NAVIGATION :

Improved Harbors..... 500
 Improved Waterways..... 22,500 miles
 Traffic (Domestic and Foreign) (CY 1961)..... 1,063 million tons
 Commerce (Great Lakes and Inland) (CY 1961) -- 210 billion ton-miles
 (1/6 of U.S. Total)

FLOOD CONTROL:

Projects in Operation..... 575
 (Reservoirs—217)
 (Other—358)
 Reservoir Storage (through June 30, 1962)..... 165 million acre-feet
 (Flood Control—63 Million Acre-Feet)
 (Other—102 Million Acre-Feet)
 Cumulative Damage Prevented (through June 30, 1962) \$11 billion

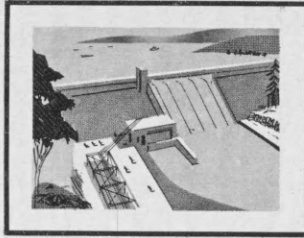
HYDROELECTRIC POWER:

Installed (1/5 of U.S. Total)..... 7.5 million kw
 Under Construction..... 4.0 million kw
 Additional Authorized..... 6.5 million kw
 Cumulative Generation (through June 30, 1962) -- 255 billion kwh
 (30 Billion KWH FY 1962)

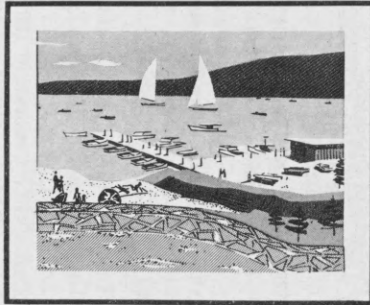
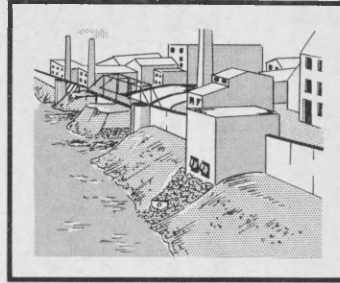
WATER SUPPLY:

Municipal and Industrial Storage..... 1.5 million acre-feet
 Irrigation Storage..... 4.0 million acre-feet

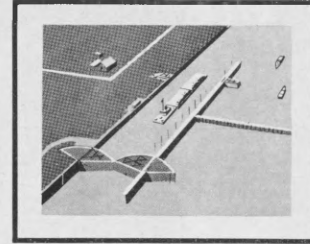
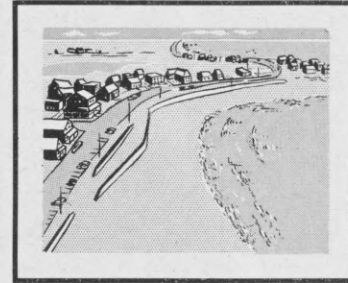
RECREATION ATTENDANCE (CY 1961)..... 120 million

MULTIPLE PURPOSE PROJECT**WATER SUPPLY STORAGE
TO SERVE—**

- FLOOD CONTROL
- NAVIGATION
- HYDROELECTRIC POWER
- MUNICIPAL AND INDUSTRIAL SUPPLY
- RECREATION

**SCOPE OF THE ARMY CIVIL WORKS PROGRAM****LOCAL FLOOD PROTECTION****RECREATION**

- BOATING
- SWIMMING
- WATER SKIING
- PICNICKING
- CAMPING
- FISHING
- HUNTING

**NAVIGATION****BEACH EROSION AND
HURRICANE PROTECTION***Figure 25.*

Navigation

Federal activity in the construction of channels and harbors began with the passage of the first River and Harbor Act of 1824 for clearing and snagging in the Ohio and Mississippi Rivers. The present program includes projects located throughout the United States, Puerto Rico, and the Virgin Islands. These projects consist of coastal harbors and channels, Great Lakes harbors and channels, and the inland and intracoastal waterways. Navigation facilities provided by these projects accommodate both foreign and domestic commerce.

During fiscal year 1962 construction was under way on 114 navigation projects, of which 35 were placed in useful operation. Maintenance and operation activities were conducted on navigation projects during the fiscal year at a cost of \$110,000,000. These maintenance funds were used primarily for work on deep draft harbors and major inland waterways to serve the requirements of commerce and navigation.

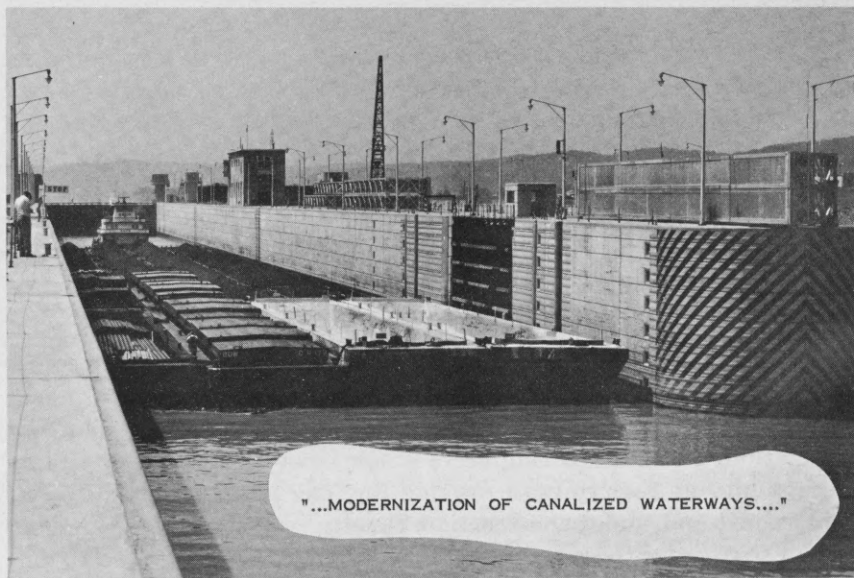


Figure 26.

The current program for modernization of canalized waterways through replacement and/or reconstruction of existing locks and dams calls for new structures on the Monongahela River, the Warrior-Tombigbee system, the Ohio River, the Mississippi River, and miscellaneous projects on other rivers, totaling in all \$1.6 billion. The 17 replace-

ment structures now under construction will be completed at an estimated cost of \$631 million.

Flood Control

The responsibility for nationwide flood control was assigned to the Corps of Engineers by the 1936 Flood Control Act, which also established the Federal policy for that activity. Since 1936, the Corps of Engineers has completed about 580 projects for useful operation and 149 additional flood control projects are under construction.

Despite the progress made on construction of projects for flood control, adequate protection is not available in most areas, and the Nation is highly vulnerable to severe damages from floods.

Results obtained through completed flood control projects, which have in the past saved two or more times their cost in property damages prevented, have proven that much of the flood damage now experienced can be economically prevented by additional works for flood control projects.

Power

Hydroelectric power produced at civil works projects is making an important contribution to the Nation's electric power needs. During the year, the installed capacity at Corps projects was increased by 657,000 kilowatts. The installed generating capacity in operation at 36 projects, located in 19 States across the Nation, is 7,531,400 kilowatts. This represents 4.0 percent of the Nation's total generating capacity and 21 percent of the country's installed hydroelectric capacity. These generating facilities produced 30 billion kilowatt hours for marketing during the fiscal year.

Water Conservation Measures

With water supply requirements growing even faster than our population, the Corps of Engineers is now incorporating water supply storage into its reservoirs to provide for long-range needs. Projects constructed and under construction already provide 5.5 million acre-feet of storage for these purposes.

Included are about 1.5 million acre-feet of storage for municipal and industrial water supply in 19 reservoirs serving some 40 cities.

Some 4 million acre-feet of additional storage provides water for irrigation. Pollution abatement planning is under way with the Department of Health, Education, and Welfare, to schedule project operations directed toward water quality control. Large quantities of water made available for power releases and evacuation of flood con-

trol storage space will continue to improve the quality and quantity of downstream flows.

Recreation, Fish, and Wildlife

The American public has seized enthusiastically upon the extensive opportunities for outdoor recreation, including boating, swimming, water skiing, fishing, camping, and picnicking, provided by Corps projects.

Attendance at civil works projects reached 120 million during the calendar year 1961. This attendance represents an average increase of about 10 million visitors each year since 1952.



Figure 27.

The public now has access to the over 3 million acres of water at these projects at 3,685 points and boat launchings may be made at 2,050 launching ramps.

In excess of 21 million pounds of sport fish were caught at these projects during the past year. The recreational facilities available to the public are provided and maintained either by the Corps of Engineers or by cooperating Federal, State, county, and municipal agencies.

Beach Erosion Control and Hurricane Protection

The policy of Federal assistance for the restoration and protection against erosion by waves and currents applies to shores owned by

States, municipalities, or other political subdivisions, and to shores other than public if there is a public benefit.

Construction of a project is accomplished by local interests or by the Government by mutual agreement. During fiscal year 1962 payment was made for the Federal share of construction costs for a project from Silver Beach to Cedar Beach, Conn.

Hurricane protection construction continued on the Fox Point hurricane-flood protection project at Providence, R.I., and construction was initiated on the project at Texas City, Tex. Planning of the New Bedford, Fairhaven, and Acushnet, Mass., hurricane-flood protection project was sufficiently advanced that construction can start as soon as local interests provide the required 30 percent of the first cost. It is expected that the Commonwealth of Massachusetts will complete action for this purpose so that construction can be initiated in 1963.

National Emergency and Disaster Relief Activities

Under the assigned responsibilities for flood emergency activities of Public Law 99, and previous legislation, advance preparation, flood fighting and rescue work, and repair and restoration of flood control works damaged by floods, were carried out. ~~In addition~~, assistance in connection with "major disasters" was provided under Public Law 875 at the request of the Office of Emergency Planning (OEP).

Assistance was given at Charleston, W. Va., in July 1961, where flash flooding caused severe damage and the loss of 21 lives; and in Texas inland areas affected by the heavy rains accompanying Hurricane Carla in September 1961. Aid was also provided in Mississippi and Alabama where there was major flooding on the Pearl River in November and December 1961; and in the area of Los Angeles and the upper Ventura Basin, Calif., which was flooded by heavy rains in March 1962.

At the request of the governor, aid was given to combat widespread flooding in Idaho in February 1962. Flooding was particularly severe in the Ohio River Basin in February and March 1962. In Iowa, Nebraska, and the Dakotas, melting of heavy snowpack during the spring of 1962, together with seasonal rainfall, led to severe floods.

Emergency repair and restoration of Texas levees damaged by tidal flooding from Hurricane Carla was essentially completed at a cost of \$1.4 million, and emergency repair of levees in the Kootenai River Basin, Idaho, damaged by spring floods, was accomplished at a cost of \$918,000.

Assistance was also provided at the request of the Office of Emergency Planning, including debris removal and repair and replacement of local flood control works, in areas of Texas and Louisiana adversely

affected by Hurricane Carla and associated tornadoes and flooding. This work, substantially completed, is estimated to cost \$3.6 million.

Disastrous damage was caused by the prolonged northeast storm of March 1962 along the middle Atlantic coast, which, concurrent with high spring tides and accompanying water surges and waves, caused extensive destruction, flooding, and shore erosion. The Corps of Engineers undertook surveys and investigations of the shorefront damages and provided immediate disaster assistance. This included debris removal and dewatering, provision of services relating to repair and replacement of public facilities, and to recovery and shore protection to meet the threat of the expected hurricane season to begin in mid-August.

The OEP authorized the Corps to accomplish restoration or replacement of boardwalks, emergency repair of bulkheads or seawalls, reestablishment of minimum beachfront, and the restoration or construction of sand dune barriers.

The total cost of the work by the Corps under this program, designated as Operation FIVE-HIGH, is tentatively estimated at \$17 million when completed.

Planning was continued on National Emergency Programs of the Corps of Engineers. These programs include development of operational capabilities for recovery following enemy attack with respect to civil works projects and facilities. Emphasis has been placed on effective coordination and liaison, preparation of emergency plans, adequate training of personnel, procurement of training aids and radiac instruments, and study of emergency communications capabilities and requirements.

Future Projects

The present active program, consisting of more than 3,400 projects, has an estimated construction cost of about \$19 billion. Appropriations through fiscal year 1962 for that construction total some \$11 billion, leaving a requirement of about \$8 billion. Authorized projects for which construction funds have not yet been appropriated have an estimated cost of some \$4 billion.

An appraisal of the needs that will probably exist by 1980 has been made based on median projections of population, gross national product, and industrial development. To carry out a program that would meet all needs expected to develop between 1962 and 1980, it would be necessary to make capital investments totaling about \$28 billion. This would represent a gradual increase in the level of annual appropriations for this work to the extent that the requirement for 1980 would be more than double the current level.

Full consideration should continue to be given to comprehensive basin-wide development of water resources to meet foreseeable needs essential to economic development and growth and the well-being of all the people. Water resources development contributes directly to the economy through lowered transportation costs, reduced flood losses, hydropower, water supply, and related water uses.

VII. General Management

Management of the Army's business is continuously affected by changing national and international situations, by advancing military concepts and technology, and by improved management techniques. Many changes were made during the year to improve management organization, systems, procedures, and techniques. In essence, these improvements were additional stepping stones toward the goal of improved communications and more rapid decision-making at top levels in the Army.

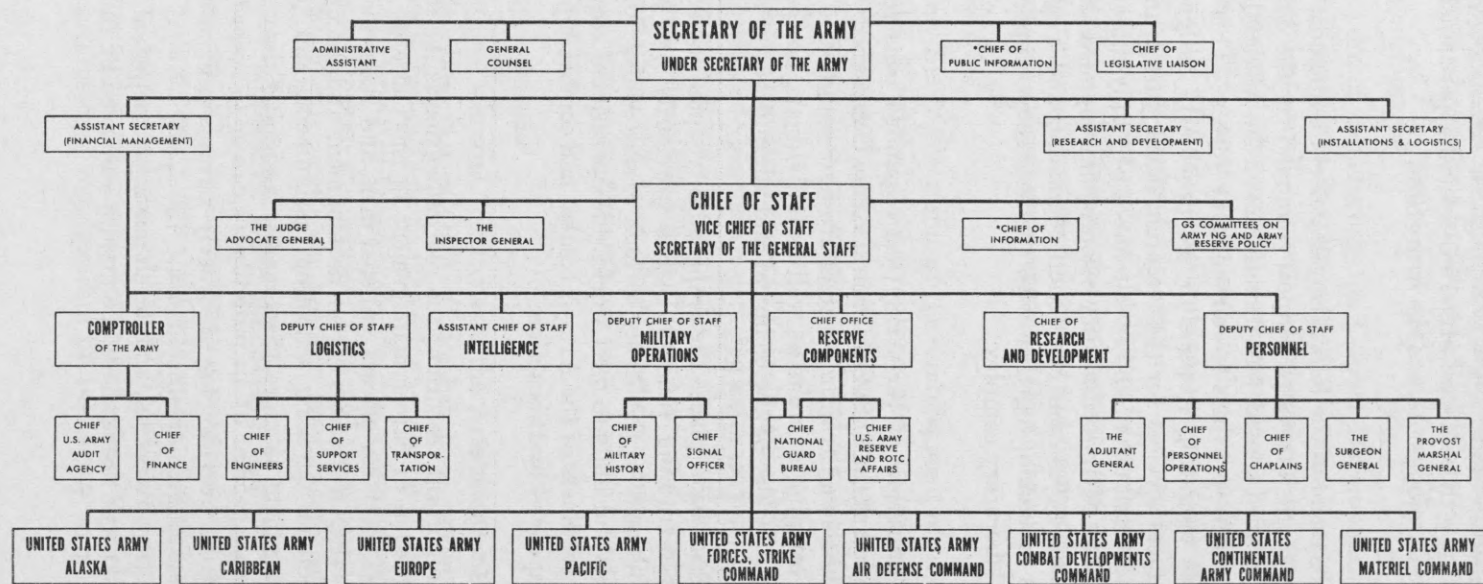
Reorganization of Department of the Army

A most comprehensive study of the functions, organization, and procedures of the Department of the Army was completed during fiscal year 1962. This far-reaching study was initiated in February 1961. On October 5, the final report, consisting of eight separate volumes, was completed. The plan was reviewed and approved by the Secretary of Defense, the President, and the Armed Services Committees of the Congress and became effective on February 17, 1962.

Several significant aspects of the reorganization plan are these: First, the study was concerned primarily with the management, personnel, logistics, and training functions at higher echelons, rather than the organization or functions of the Army's combat units; second, in consolidating the responsibility for various functions, the organization of the technical services was revamped extensively. Commodity assignments had become entangled, and technological changes were imposing difficult problems under the structure of the older technical service organization. Third, a major purpose of the reorganization was to simplify command responsibilities while preserving the operating structure in the field.

The Department of the Army's major command structure for support of its combat elements is now composed of the U.S. Continental Army Command, the U.S. Army Combat Developments Command, the U.S. Army Materiel Command, and the heads of certain Army Special Staff agencies, such as Chief of Engineers, Chief Signal Officer, and the Surgeon General, which have operating elements for performance of their Army-wide service functions.

ORGANIZATION OF THE DEPARTMENT OF THE ARMY - AFTER REORGANIZATION



*THE CHIEF OF PUBLIC INFORMATION ALSO SERVES AS CHIEF OF INFORMATION.

Figure 29.

The more significant changes brought about by the reorganization are grouped into these areas: Materiel, training, personnel management, combat developments, and the Army Staff.

Materiel

The establishment of the U.S. Army Materiel Command (USAMC) has created a single integrated support command for the Army which will exercise unified control and direction over the wholesale materiel support the Army provides to our military forces. This command assumes those operating responsibilities previously assigned to the various technical services for the research, development, production, procurement, distribution, and maintenance of Army materiel. The USAMC consists of five commodity-oriented development and production commands, a test and evaluation command, and a supply and maintenance command, together with the necessary supporting common service laboratory complex.

Training

The reorganization of the Army has expanded considerably the training mission of the U.S. Continental Army Command. Virtually all Army schools and training centers are now assigned to USCONARC. The training of units as well as individuals, not only of the combat arms, but also of the technical and administrative services, is now centralized in USCONARC.

The reorganization places the responsibility upon one commander to execute the training function, which previously had been fragmented. This enables the Army to look to one source for training of individuals and units to meet worldwide operational requirements. The state of readiness of the Army's combat and combat support units should be improved by this action.

Personnel Management

Another important feature of the reorganization is the integration and centralization of career management in the Office of Personnel Operations (OPO) for officers, enlisted men, and reserve component personnel. OPO will stress career development and set up uniform personnel policies covering schooling, assignment, and promotion. Career management is more than merely assigning duty tours. It entails the management of an individual's career in accordance with a pattern which provides for an orderly advancement and development of officers and senior enlisted men.

The attraction, retention, and development of competent personnel to meet the Army's needs should be greatly enhanced by this forward

step. The quality of personnel remains the most important single factor in determining the Army's over-all effectiveness.

Combat Developments

The purpose of establishing the Combat Developments Command was to pull together under one authority several loosely coordinated and independent small elements, all dealing with various aspects of forces, materiel, and combat development, as well as field testing operations. This command is responsible for making a projection as to the nature of future land warfare and the type of forces, materiel, and concepts necessary to engage in such action.

The subordinate elements of the Combat Developments Command are oriented toward long-range planning and the determination of doctrine for special warfare and atomic and conventional warfare as well as logistical support requirements of the field army.

The Army Staff

The Army Staff, as a result of the establishment of new commands and agencies, is reduced considerably in size. It has been relieved of many of its command-like and operating functions and is organized to improve supervision and management and planning for the future. (See fig. 28.)

The various elements of the staff to include the Army General Staff and the special staff agencies are depicted in figure 29.

The Army-wide service functions of the Chief of Engineers, the Chief Signal Officer, the Chief of Transportation, and the Surgeon General remain on the Army Staff. Certain service functions of the former Quartermaster General are now assigned to the Chief of Support Services.

After Reorganization

By grouping materiel functions in the Army Materiel Command, training functions in USCONARC, combat development functions in the Combat Developments Command, and personnel management in the Office of Personnel Operations, the Army has provided for a cohesiveness of purpose and a better means of translating its resources into combat effective units equipped to meet future conditions.

Automatic Data-Processing Systems

In November 1961, the Army began a project which, at least in its complexity, is probably unmatched in either industry or any other Government agency. This project, AUTOPROBE, is an integrated and automated information system which is being designed to support the information requirements of the Army in planning, pro-

graming, budgeting, resource management, and command and control.

AUTOPROBE has three major parts. The first is a large data storage and retrieval system called a data bank. In this data bank will be stored the latest approved force structure, troop programs, authorized tables of organization and equipment, tables of distribution, and tables of allowances. More important, it should provide a measure of combat readiness.

The second part of AUTOPROBE is a large high-speed computer. Through a combination of a random access data bank and high-speed computer, AUTOPROBE will be capable of developing a wide range of alternative plans, force structures, and readiness programs related to specific missions in terms of associated budgetary, manpower, and materiel requirements. It will also set forth the implications of alternate courses of action.

The development of a research and development management information system, as the third part of AUTOPROBE, is scheduled for completion and full implementation on June 30, 1963. A PERT/COST system has been developed and as of June 30, 1962, was being pilot tested on MAULER. This system is planned for use also on MISSILE B, a division support weapon eventually to replace the HONEST JOHN and LACROSSE.

Other tasks within the AUTOPROBE project include the automation of procurement and production scheduling, the Army reserve component system, the Army Long-Range Capabilities Plan, and support of the Army Command and Control Center. This latter application is actually a part of AUTOPROBE, and will provide information for an automated visual display center in the Army's war room.

While completion of the over-all project is scheduled for 1965, individual tasks or segments of the total project are scheduled, as indicated above, for earlier successive dates.

At the end of the year, the Army was operating 173 electronic digital computers at 108 locations. In addition, 254 data-processing activities were operating under punched card machine methods. Total costs for the year for personnel, supplies, and equipment were \$111 million, an increase of \$7 million over fiscal year 1961. Costs on the order of \$126 million are predicted for fiscal year 1963. This rising cost is considered a normal outgrowth of increased military preparedness. The capacity of the Army to respond rapidly to given situations will be enhanced immeasurably by these systems.

Auditing

The U.S. Army Audit Agency continued its program of independent and objective appraisals of financial resources management. Dur-

ing the year the agency provided preaward analysis and audit of procurement contracts involving more than \$8 billion, and provided comprehensive internal audit service to 252 nontactical military activities.

Preaward audit services have been substantially increased. This activity of the Audit Agency reduced the estimated cost of new procurement by \$92 million. In addition, a total of \$208 million of costs was questioned by the agency and ultimately disallowed by contracting officers. Numerous recommendations for the improvement of management controls relative to the use of materials, labor, and equipment also were made at a dollar savings which cannot be readily estimated.

During fiscal year 1962, the agency contributed to functional improvements in the Department of the Army. The recommended solutions to problems disclosed by several special audits provided valuable assistance to top management.

In many respects, the agency has taken the lead in the development and utilization of modern management techniques. Examples of some of the more significant accomplishments are summarized below.

Audit of Contractors

A number of audit reports on the financial management practices of major contractors doing business with the Department of the Army was issued to procurement personnel. These reports related to the reasonableness of costs proposed or incurred by major contractors, the financial controls exercised, the use of engineering and scientific personnel, and the impact of increased volume on contractor profits. These audit reports also identified problems having applicability beyond the individual contractor audited. Some examples of the more significant audits which resulted in recommendations for improvements and substantial savings to the Government included these:

An analysis by the USAAA of its audit reports on make-or-buy, purchasing, and subcontracting policies and practices of 53 contractors resulted in substantial savings to the Government. In one case, where weaknesses in the contractor's purchasing procedures were found, a follow-up audit of costs incurred under firm fixed-price subcontracts resulted in saving \$1.0 million on a subsequent procurement.

The emphasis upon reasonableness as a criterion for determining the allowability of costs resulted in a saving of almost \$500,000 in the case of one contractor.

As a result of the audit of bids submitted by potential vendors, one contractor's bid was reduced by more than \$15 million.

Internal Audits

The ability of the Army Audit Agency to respond quickly and effectively to requests for data on matters concerning mobilization was demonstrated by a special audit of the conditions surrounding the call to active duty of National Guard divisions and reserve units. Auditors promptly identified problems in funding, supply, and unit training, many of which were beyond the control of the Army. The conditions disclosed formed the basis for recommendations applicable to future mobilization plans.

Problems in personnel, training, equipment, supply, and funding, which adversely affected the readiness of a STRAF division, were disclosed at one Army installation. Recommendations were submitted and are being implemented.

When Ready Reserve records were revised following the callup in 1961, the Audit Agency reviewed the revised records. Recommendations were made to improve the accuracy and current status of the personnel records.

An audit of Army real estate management disclosed that it was necessary to continue uneconomical leasing of properties, especially when sufficient appropriated funds were not available for new construction. This audit was used as a model for similar audits being planned by the Departments of the Air Force and Navy.

Other audits included an audit evaluation of a test of the Army Plan for Equipment Record Revision (TAPER) and a special audit of Capehart construction.

The Audit Agency also was assigned the responsibility for a continuing audit of military assistance operations. At the request of the Secretary of Defense, it is currently performing a special worldwide audit of MAP undelivered balances. The audit encompasses a review and verification as to whether the undelivered balances represent items still required in the military assistance plan.

Improvements in Auditing Concepts and Techniques

By the use of statistical sampling, agency audits have produced more factual and meaningful results by selective examination than otherwise could have been obtained from voluminous data. In many instances, this has made possible considerable savings in audit man-hours.

The agency, by obtaining greater knowledge of the use and adaptability of automatic data-processing (ADP) to auditing, has be-

gun to analyze and compile statistical data by machine methods. Studies leading to the possible use of machines in statistical sampling were conducted.

Audit Compliance Group

In November 1961, the Audit Compliance Group was established in the Office of the Comptroller of the Army. The group was created as a part of the over-all effort to improve the effectiveness of internal management as a result of contract and internal audits performed by the USAAA. The major functions of this group are: (1) To assure prompt and positive action on all Audit Agency reports, and (2) to provide for follow-up at reasonable intervals on approved recommendations.

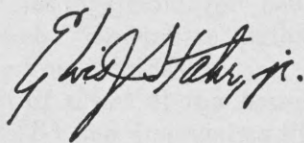
The results of the efforts of this group have been encouraging. Also, the follow-up program results in more timely completion of corrective action.

VIII. Conclusion

This report of achievements would not be complete without a word of tribute to those National Guardsmen and Army Reservists whose response to the call of duty contributed so much to the growth of American and free world military strength in a period of grave crisis.

The Army is ready to go. It is proud of the effectiveness of its organization and is continuing to advance by seeking significant improvements in every area of its activities. It is equally proud both of the weapons and equipment now being placed in the hands of troops and of the advanced types soon to be available. It is using its flexible organization and fine equipment to operate effectively in a wide variety of environments.

The people of the United States have every right to an Army upon which they can rely implicitly. Today's versatile, dedicated Army deserves their confidence. Should the United States be successful in its aim to preserve freedom without war, it will be because those who threaten freedom can see that America's intention to stand firm is backed by the military ability to do so.

A handwritten signature in cursive script, reading "Elvis J. Staehr, Jr.".

ELVIS J. STAHR, JR.,
Secretary of the Army.

Annual Report
of the
SECRETARY OF THE NAVY

July 1, 1961, to June 30, 1962

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I. Introduction

Fiscal year 1962 was a year of action for the Navy and the Marine Corps, marked among other things by the recall to active duty of selected reserve ships, squadrons, and men. This tangible evidence of readiness to protect life and property and to preserve law and order provided an excellent moderating effect.

During the years ahead the Navy and the Marine Corps will undoubtedly continue to face similar tests, probably more severe ones. The need for a strong team will remain evident. "So long as fanaticism and fear brood over the affairs of men, we must arm to deter others from aggression," were the words of the President in his 1962 state of the Union message. The Navy and the Marine Corps are better able to support this role than ever before in a time of peace.

The security of our Nation rests in large part on the strength of its defense establishment. The force in existence to guarantee the Nation's freedom is no stronger than the entire industrial and economic strength. Industry and business, in collaboration with the Department of Defense, must recognize the need to curtail waste, unfruitful research, and preoccupation with greater profit. Similarly, those charged with procurement and the decisions of future programing in the Government must be frugal and discerning. An objective approach must be followed in each negotiation, in each problem, as successful results depend upon men and their attitudes. A splendid industry-Defense working relationship exists now.

Dynamic change is the keynote of the world in which we live. As technology advances, our naval concepts and weapons must continuously adjust to and exploit the products of this change. It is not enough for concepts and weapons to keep pace across the broad front of technology; they must anticipate advances in technology. Scientific progress in recent years has unfolded unlimited opportunities, but at the same time it has created new problems for the defense of our Nation and the nations of the free world.

The Department of the Navy has made real progress during fiscal year 1962 and has firm plans for effective accomplishment of its mission in 1963. Many problems have been solved, and roads to the solution of others have been opened.

II. The United States Navy

Control of the seas is a coefficient of national survival, and this control has been the naval mission throughout the history of the United States. The free world is an oceanic confederation bound by the broad highways of the seas. As our ships move over these highways, they are a visible symbol of our good will and a reassurance to our friends, as well as a warning to potential aggressors, that we are prepared to keep the seas open.

The Navy is a dynamic force, constantly adopting new developments and techniques. It is helping to form a retaliatory power base to deter the threat of nuclear war, for wise defense planning must presume the possibility of nuclear attack and recognize the need of readiness for it. Our naval forces must be capable of careful, discriminate action. They must have the ability, as part of the armed forces team, to exert the precise amount of force required on a specific objective without delay. This places a premium on versatile forces that can function effectively throughout the whole spectrum of warfare.

The Navy maintains a flexible system that will permit units to be organized into forces capable of performing multiple tasks. While it is desirable that every ship be as versatile as possible, it is impracticable for a single type to fulfill all requirements. Accordingly, multipurpose forces composed of various types of ships are utilized to perform the wide variety of tasks and combat operations inherent in the naval mission. These include strike, antisubmarine, amphibious, mine warfare, and logistic support forces.

The attack carrier striking forces and missile-equipped submarines, now on station and teamed with other forces of the armed Services under unified and specified commanders, are ready to respond to strategic requirements. To deter and cope with limited wars, mobile naval task fleets are either operating near or ready for rapid deployment to potential areas of trouble. The balanced striking power of these task forces plays an important role in our national military posture. They represent the versatility of seapower, providing a means of applying the best modern arms and tactics to stabilize situations quickly in the front lines of freedom. The most revolutionary scientific and technical advances of the century are incorporated in

our POLARIS missiles and the nuclear-powered submarines which launch them. The destroyer *Bainbridge*, cruiser *Long Beach*, and carrier *Enterprise* are the forerunners of our nuclear-powered surface fleet of the future.

Operational Readiness and Capability

Air Strike Warfare—Addition of the conventional attack aircraft carrier *Constellation* in October and the nuclear-powered carrier *Enterprise* in November and transfer of *Intrepid* to antisubmarine warfare status resulted in a total of 16 attack aircraft carriers operating with the fleet at the end of the fiscal year. Continuing progress was thus made toward replacing World War II carriers with modern ships.

Air group readiness was maintained at a high level by a rigorous and realistic training program. Delivery of a new heavy attack bomber, the A-5 (formerly the A3J), to the fleet following successful carrier qualifications began in March, and the *Enterprise* air group became the first squadron to have this new aircraft. An improved version, the A-4E (formerly the A4D-5), of the light attack aircraft Skyhawk will be introduced into the fleet early in fiscal year 1963. With its improved range and load-carrying ability it will greatly enhance the fleet's capability in light planes.

Antiair Warfare—Modern air defense systems are deployed with the fleets in significant numbers. Concentrated effort is being directed to attainment of early proficiency in surface-to-air missile systems in the new ships joining the fleet. *Constellation* and *Kitty Hawk*, the first aircraft carriers to be equipped with surface-to-air missiles, have successfully test-fired their TERRIER systems. Long-range air surveillance has been improved by the introduction of new air-search radars, and new height-determining radars have enabled better air intercept control and missile system acquisition.

The Naval Tactical Data System (NTDS) has been installed in the attack carrier *Oriskany* and in guided missile frigates *King* and *Mahan*. This digital computer system continuously computes and predicts target course and speed from data introduced by electronic and other means. Initial operational evaluation has been completed successfully and the ships have been deployed to the western Pacific with this added capability. Similar NTDS equipments are being installed and tested in *Long Beach* and *Enterprise* in the Atlantic Fleet.

The F-4 (formerly F4H) fighter aircraft is combat ready and its introduction into the fleet will greatly enhance the all-weather intercept capability of the carrier striking forces. This plane has dem-

onstrated its remarkable fighter performance by setting eight time-to-climb records and other world speed and altitude records.

Amphibious Warfare—Amphibious combat readiness was maintained at a high level by strenuous schedules of amphibious assault training with Marine Corps units, in joint operations with the Army and Air Force, in NATO and SEATO exercises, and in operations with the Republic of Korea Marines. Combat-ready amphibious ships with Marine landing teams embarked were deployed in the Mediterranean, the Caribbean, and off southeast Asia. Amphibious forces also provided services in support of Project MERCURY, DEEP FREEZE, and other fleet operations.

U.S.S. *Iwo Jima* (LPH-2), the first amphibious assault ship to be so designed and constructed from the keel up, was commissioned in Bremerton, Wash., in August 1961 and assigned to the Pacific Fleet. U.S.S. *Okinawa* (LPH-3), was commissioned at the Philadelphia Naval Shipyard in April 1962 and assigned to the Atlantic Fleet. The large troop capacity and helicopter complement of *Iwo Jima* and *Okinawa* significantly increased the vertical envelopment capability of the fleet's amphibious forces.

U.S.S. *Raleigh* (LPD-1), a new type of amphibious ship, was launched in March. *Raleigh* is designed along the lines of the LSD and features both a helicopter operating platform and a floodable well deck from which landing craft or amphibious vehicles may be launched at sea. Nine other LPDs have been approved in the ship-building program through fiscal year 1963. The LPH and LPD are expected to form the backbone of future amphibious forces.

Counterinsurgency—The Navy has created special units known as SEAL (SEa, Air, Land) Teams, STATs (Seabee Technical Assistance Teams), and MTTs (Mobile Training Teams) to work in conjunction with unified and indigenous forces in various areas of the world. SEAL Teams are currently employed in southeast Asia in various training capacities.

Because counterinsurgency requirements may involve employment of any and all elements of our conventional naval forces, either in direct participation or in support of other Services, the Navy as a whole is being made familiar with this aspect of naval operations as a current and continuing task. Education and training in counterinsurgency are now being provided at all levels.

Antisubmarine Warfare (ASW)—Our ASW capabilities have continued to progress. ASROC (antisubmarine rocket) equipped ships have entered the fleet in increasing numbers. DASH (destroyer anti-submarine helicopter) development continues, with fleet introduction

scheduled for next year. The DASH system will add a flexible long-range attack capability to our ASW surface forces.

Indications are that new long-range sonars, now being evaluated at sea, will permit detection of modern submarines at extreme ranges. This improved sonar performance will enhance considerably our ability to cope with the submarine threat.

An additional production source for ASW torpedoes has been provided. The torpedo inventory position will be bettered accordingly and a broader production base will be available in case of mobilization.

The P-3A (formerly P3V-1) Orion, an improved land-based ASW patrol aircraft, will enter the fleet in August 1962. It will extend the range of ASW patrol and will carry the most modern equipment for submarine detection, localization, and attack.

A new ASW helicopter, SH-3A (formerly HSS-2), was introduced in September. This helicopter, incorporating many improvements in both its airframe and ASW equipment, was delivered in increasing numbers to helicopter squadrons during the year.

Eight new guided missile destroyers and frigates and three new nuclear submarines were added to our ASW forces. In addition, 24 destroyer-types and 2 World War II diesel-electric submarines were modernized under the Fleet Rehabilitation and Modernization (FRAM) Program.

The concept of using sonar equipment in heavy ships has received considerable attention, and one antisubmarine carrier (CVS) is now at sea with long-range sonar installed. Several new techniques promise to enhance the fleet's capability to classify sonar returns, which has long been a major ASW problem.

In July 1962, a newly developed ASW hydrofoil craft, PCH-1, will be launched in Puget Sound. This craft is expected to be a big step forward in the development of small, high-speed, ASW platforms. Construction has started on a larger model.

Submarine Warfare—Seven new nuclear submarines joined the fleet during the past year, three attack and four FBM submarines. In addition, five nuclear attack and two FBM submarines were launched. As a result of the FRAM conversion program, the useful life of two diesel-electric submarines has been extended 5 to 8 years. One submarine tender has been modernized to service nuclear submarines.

On May 6, 1962, the first firing of a tactical POLARIS missile equipped with nuclear warhead took place in the Pacific. This firing was successful and verified the operational reliability of the complete FBM weapon system from launching ship to nuclear detonation.

Although new nuclear attack submarines are being constructed and joining the fleet in increasing numbers, the aging diesel-electric sub-

marines, primarily of World War II vintage, continue to carry the brunt of operational commitments. These older submarines are experiencing increasing material casualties that customarily come with age. As with other fleet units, the need for a continuing replacement program is apparent.

Mine Warfare—Forces providing immediate mine countermeasures support to naval operations are maintained in a ready posture. U.S. forces took part in mine countermeasures exercises with the navies of NATO, western Pacific, and southeast Asian countries. Material readiness is good. A mine-locating sonar and an acoustic mine-sweeping device, promising greatly increased capabilities, are under development and are expected to be ready for service in approximately 1 year.

The Harbor Defense Units at Norfolk, Va., and San Francisco, Calif., are organized on a mobile concept to provide teams of trained personnel with mobile equipment for deployment when and where required. Mobile teams have been exercised in simulated deployments, and results confirm the soundness of this new concept.

Allowances of a number of activities have been revised to include personnel specially trained in explosive ordnance disposal. This has improved team capability in all the geographic areas that might require their services.

Electronic Warfare—A significant improvement in the antiair warfare capability of the fleet has been achieved through the installation of many new generation electronic equipments. Their added power and great flexibility enhance the ability to cope with a strong threat within an environment of potentially heavy enemy electronic countermeasures.

The fleet's navigational capability has been improved by expansion of LORAN C and by progress in development and test of the OMEGA and TRANSIT systems. LORAN C is an accurate navigation system, requiring shore installations and providing coverage within a relatively short distance from the installation. OMEGA and TRANSIT are extremely accurate worldwide surface navigation systems using orbiting satellites. They differ in the method of operation and in the fact that TRANSIT is more complex and slightly more accurate.

Material Condition of the Fleet

In general, the material condition of the fleet is satisfactory and, considering age and defects associated with age, it is a fair appraisal to say that its over-all condition improved during the reporting year. *Fleet Rehabilitation and Modernization Program (FRAM)*—As planned through fiscal years 1960–69, the FRAM program provides

for a complete rehabilitation of hull and machinery and a modernization of weapons and equipment sufficient to offset over-age effects and increase the useful life of a ship a minimum of 5 to 8 years. FRAM not only raises the operational effectiveness of the fleet as a whole, but also provides the necessary time to effect a realistic shipbuilding program of the size and type needed to replace our over-age ships. Eighty-eight ships, 61 this year, have completed the program.

Overhauls—A program of thorough overhauls was started in fiscal year 1960. All active ships have now completed at least one overhaul under this program. While not equivalent to FRAM, these overhauls are sufficient in scope to assure reasonably satisfactory operation of major items of machinery and equipment.

Modernizations—It has not been possible to fund the modernization of ships during overhauls to the extent that might be desired. Selected improvements to individual ships, however, have provided increased military capabilities to the majority of ships overhauled this year.

New Construction—Twenty-five new ships were commissioned this year. These comprise 6 guided missile destroyers, 2 guided missile destroyer leaders, 3 nuclear submarines, 4 ballistic missile submarines, 2 amphibious assault ships, an attack carrier, a nuclear-powered attack carrier, a coastal minesweeper, a guided missile nuclear-powered cruiser, an amphibious transport, a research auxiliary, and 2 mobile support-type ships.

Mobile Logistic Support

Mobile logistic support is a ship-based system characterized by mobility, flexibility, and minimum dependence upon shore-based facilities. The two principal categories of ships which support the mobile logistic support concept are the underway replenishment and mobile support types.

Underway Replenishment Types—Present and future high-speed, dispersed strike forces require replenishment individually or in small groups without collecting the forces into vulnerable, close replenishment dispositions. The AOE (Fast Combat Support Ship), AFS (Combat Store Ship), AE (Ammunition Ship, AE-23 class), AO (Oiler, AO-143 class), and the AF (Store Ship, AF-58 class) are modern ships which have speed, capacity, and capability for the fast and efficient cargo handling required to replenish operating strike forces. Use of helicopters in underway replenishment shows great promise in augmenting transfer rates, permitting replenishment without having ships alongside, and providing greater flexibility.

Two AFs and one AOE are presently under construction, with one additional AOE planned in the fiscal year 1963 shipbuilding program. Planned conversions of existing AE and AO types will help increase the underway replenishment capability which is vital in all fields of warfare where surface ships are deployed.

Mobile Support Types—Logistic support of deployed forces is provided by the Mobile Support Group, tailored to meet the requirements of the force it supports. Ships of the mobile support type include tenders, repair, salvage, barracks, hospital and rescue ships, tugs, degaussing ships, and many others.

Hunley (AS-31), a fleet ballistic missile submarine tender, and *Tallahatchie County* (AVB-2), an advanced aviation ship, were commissioned during this fiscal year. *Holland* (AS-32) is under construction, and one additional tender of the same type is planned for fiscal year 1963.

Support Ships—Ships of this group perform sundry (but vital) tasks of a noncombatant nature such as research and development, surveying, and training. Construction of two AGOR (oceanographic research ships), one AGS (surveying ship), and conversion of a satellite communication ship were started this fiscal year. Conversion of one AGMR (major communications relay ship), two AGTR (technical research ships), an AVM (guided missile ship), and construction of two more AGORs are planned for next fiscal year.

Military Sea Transportation Service (MSTS)

Commander, Military Sea Transportation Service, operated a nucleus (Navy-owned) fleet of approximately 115 ships to provide sealift and special project services. The sealift was augmented by U.S. flag commercial shipping. Cargo and passengers continued to increase. Dry cargo lift was the largest annual total since fiscal year 1958.

	FY 61	FY 62	% increase
Cargo (measurement tons)-----	10,799,691	12,667,378	17.3
Petroleum (long tons)-----	15,987,193	17,092,205	6.9
Passengers -----	405,944	439,562	8.3

MSTS troopships lifted 29,182 troops to Europe during the buildup in late 1961 incident to the Berlin crisis. A total of 17,294 troops were transported between India, Malaya, and Pakistan and the east coast of Africa in support of the United Nations Congo forces. Tanker operations also supported Operation DEEP FREEZE in the Antarctic and completed 23 voyages to northeast Arctic bases.

Fourteen special project ships provided services to the Pacific Missile Range, Project ADVENT, the Hydrographic Office, the National

Aeronautics and Space Administration (NASA), and the National Science Foundation.

Fleet Operations and Training

Employment of Forces

The Fleets—The approximately nine hundred ships of the active Navy list are in general assigned to four numbered fleets. The First and Second Fleets operate in the Pacific and in the Atlantic, respectively. The Sixth Fleet operates in the Mediterranean, the Seventh Fleet in the western Pacific. The First and Second Fleets are composed of units normally involved in local training operations close to home ports. They also include Navy ships undergoing work-up training preparatory to deployment to the overseas fleets. The Sixth and Seventh Fleets are maintained in a high state of training and readiness and are deployed overseas to enable the United States to react quickly in their respective objective areas in the event that naval units or their embarked Marine forces are required.

A reinforced Marine battalion landing team with supporting Marine air elements is embarked in the Second, Sixth, and Seventh Fleets. Each of these is backed by shore-based Marine forces in an alert status for reinforcement purposes.

All four fleets are built around the attack aircraft carriers. During this period, two attack carriers were deployed with the Sixth Fleet and three with the Seventh Fleet, while remaining carriers were assigned to the "home" fleets. Additional deployed ships provided support and amphibious lift for the embarked Fleet Marine Forces.

Naval sea and air forces comprise part of the seaward extensions of both the Distant Early Warning (DEW) line and the Contiguous Radar Coverage System. A naval fighter squadron provides air defense for the San Diego, Calif., area and, temporarily, for southern Florida, by basing part of the squadron at Key West, Fla. The Naval Space Surveillance System (SPASUR) provides satellite orbital information to NORAD/CONAD.

All ships of the fleet collect oceanographic and bathymetric data from the ocean areas of the world. The demilitarized submarine, U.S.S. *Archerfish*, is engaged in a worldwide data collection cruise, and is now in the western Pacific. In addition, the U.S.N.S. *Bowditch*, *Michelson*, and *Dutton* are making surveys in the Atlantic area.

The resumption of atmospheric nuclear testing in the Pacific has resulted in the deployment of extensive naval forces to participate in, and support the conduct of, these tests.

Exercises—Emphasis on the importance of joint exercises with other military Services increased significantly during the past year as the unified and specified commanders tested their respective unilateral theater contingency action plans. Typical of exercises in this category was QUICK KICK, in which ships of all types from carriers to minesweepers participated, together with elements of the U.S. Marine Corps, U.S. Army, U.S. Air Force, and Military Air Transport Service (MATS).

A large percentage of joint exercises was scheduled to support naval requirements generated by the other military Services in furtherance of their training. In addition to regularly scheduled Army-Navy exercises such as PHIBLEX EUSA, an Army battle group landing exercise, for which the Navy provided amphibious and support ships, was conducted in Korea.

Combined exercises (more than one nation) fall generally into two categories. First, there are those arranged directly between the United States and friendly foreign countries. One of the important exercises in this category was Operation UNITAS, a series of antisubmarine warfare exercises conducted in the home waters of the coastal countries of South America. U.S. destroyers, submarines, and patrol aircraft assisted in the training of similar types of Latin American forces in order to promote enhanced readiness in this vital aspect of naval warfare. Other combined exercises were conducted with virtually every friendly foreign country maintaining naval forces. These exercises emphasized the development of higher levels of training and readiness within the framework of the objectives of national policies. In most cases, the exercises themselves were small, but they represented in the aggregate a large expenditure of effort.

In the second category are those exercises scheduled, planned, and conducted by military components of the several treaty organizations of which the United States is either a member or with which the United States cooperates. During the fiscal year, the North Atlantic Treaty Organization (NATO) scheduled its maritime training exercise cycle for a 4-year period, with calendar year 1964 the next major exercise year. However, a number of significant exercises were conducted this year. The largest of these was RIP TIDE II, an air strike exercise in which U.S. carriers, cruisers, and other combatant ships and patrol aircraft participated with major naval forces of the United Kingdom and Canada. Another important NATO exercise was FISH PLAY SIX, principally concerned with submarine warfare-type training in which the United States, United Kingdom, Canada, and the Netherlands participated. These two exercises were tailored to Atlantic problems of NATO under Supreme Allied Command, Atlantic (SACLANT).

Other NATO exercises were conducted in the Mediterranean under Supreme Allied Command, Europe (SACEUR), using elements of the U.S. Sixth Fleet. CHECKMATE II, conducted in the Saros Bay area of Turkish Thrace, was one of these. This exercise marked the first integrated participation of the amphibious forces of the United States, Greece, and Turkey in a NATO exercise. Close air support was provided by the U.S. attack carrier striking force and the tactical air forces of Greece and Turkey.

The Southeast Asia Treaty Organization (SEATO) does not follow cycle-type programming for maritime exercises, tending rather toward a major exercise each year. Such was TULUNGAN, a major joint-combined amphibious exercise, held in March and April in the Philippines. Philippine Army and Navy forces operated with a considerable part of the U.S. Seventh Fleet and its Fleet Marine Force and elements of the U.S. Army and Air Force Pacific Commands.

The Central Treaty Organization (CENTO) military planning staff schedules maritime exercises in the Middle East on a regular 3-year cycle. The next major maritime exercise will be in the fall of 1963. The most significant CENTO maritime exercises are convoy and coastal defense. Naval forces from Iran, Pakistan, the United Kingdom, and the United States participate in these.

In addition to the foregoing, the Navy continually conducts diversified, unilateral training exercises throughout the fleets in order to maintain the capability to perform its mission in widely dispersed areas throughout the world. Such exercises as LANTFLEX 1-62 involved 82 ships and approximately 50,000 men and covered virtually every phase of naval warfare.

Fleet Support Operations—In executing peacetime policies of the United States, the contributions of naval forces range from humanitarian assistance to good will visits to foreign ports. Our ships and personnel make a major contribution to the furtherance of national policy and objectives.

In addition to "showing the flag" and lending humanitarian assistance when needed, our naval forces typically engage in regularly scheduled support operations. Since 1927, for example, the Navy has provided assistance to the Bureau of Fisheries, U.S. Department of the Interior, for amphibious resupply of the Pribilof Islands in the Bering Sea and for shipping seal pelts outbound to U.S. markets. By joint agreement, resupply of these island stations will be accomplished by commercial shipping starting in fiscal year 1963.

Resupply of Air Force and weather stations in Greenland and northeastern Canada involved Navy icebreakers and other miscellaneous naval units. Icebreakers also assisted Canadian resupply of DEW line stations and engaged in scientific operations.

In the Antarctic, Operation DEEP FREEZE 62 started on schedule with the fly-in of cargo aircraft on September 26, 1961. Ship resupply operations were notable not only for their early arrival at McMurdo Sound on November 20, but also for the successful delivery over the bay ice of 5 million gallons of fuel and 10,000 tons of cargo, including nuclear reactor units weighing over 15 tons. New Byrd Station was occupied this year, and a summer station in the Ellsworth Highland area was established by air to meet a new scientific requirement. A nuclear reactor to provide power at McMurdo Sound became operational in March.

Air resupply of interior Antarctic stations totaled 3,400 tons. An additional 800 tons were airdropped at the inland Byrd and Pole Stations where landings were not possible.

Naval Aviation

Aviation Training—The output of new pilots from the Naval Air Training Command for fiscal year 1962 was 1,400, including U.S. Coast Guard students and those from foreign countries. Student recruitment having been considerably greater than in previous years, the number of students now in training is sufficient to assure the 1,700 training rate planned for fiscal year 1963.

The Naval Aviation Technical Training Command graduated the following number of officers and men:

	<i>School</i>	<i>Output</i>
Familiarization/Basic		15, 630
Advanced		3, 260
Special		4, 676
Officer		1, 440
Instructor Training.....		1, 337
Total		26, 343

In addition to the formal schools, the Naval Air Maintenance Training Group conducted training on naval air weapon systems and associated support equipment at required operational sites. The number of students graduating totaled 64,007.

The Replacement Air Group concept has again paid off measurably in the smooth, orderly, and accelerated fleet introduction of new aircraft with trained pilots and crews. This concept is now being extended to ASW forces, and is expected to provide increased readiness as a result of better training and improved personnel stability.

To give naval aviation the highest possible combat potential by perpetuating operational knowledge gained from hard experience and keeping it continuously up-to-date, the Naval Air Training and Operating Procedures Program (NATOPS) is producing a series of manuals incorporating such information governing the operation of

each aircraft in the Navy inventory and serving as the standardization guide. Many of the manuals are in use now in the fleet, and the series is expected to be completed shortly. Standardized pilot procedures for both shore- and carrier-based operations should increase combat readiness and improve safety.

Aviation Safety—Although actual flight hours increased by 7 percent, the aircraft accident rate of 1.56 per 10,000 represented a decline of 9 percent. Slightly more than half of the accidents resulted in destruction of the aircraft, down 5 percent over previous years. Loss incident to these accidents was calculated at \$285 million, approximately the same as last year. The average cost per accident, however, has increased by approximately \$19,000, in direct ratio to the increase in cost and complexity of aircraft in the inventory.

Despite a considerable increase in aircraft carrier activity at night, the carrier landing accident rate decreased by 20 percent. This safety achievement reflects improved techniques by *Forrestal*- and *Enterprise*-class carriers operating the most recent versions of high-performance naval aircraft.

Installation of low-altitude ejection equipment in high-performance aircraft is credited for a decrease of 5 percent in the pilot fatality rate. Crew fatality rates are predicted to decline steadily as further installation of this equipment progresses.

The safety of night and all-weather carrier operations for fixed-wing aircraft and helicopters has been enhanced by the development of automatic devices, new electronic devices, and improved lighting.

Operational Developments

Missiles—The BULLPUP family of missiles provides naval attack aircraft with the capability to attack targets accurately while remaining beyond effective range of enemy small arms and light anti-aircraft fire. BULLPUP A has been operational with fleet units since 1959. BULLPUP B, a larger and more powerful model of the missile, was successfully demonstrated by the contractor in December 1961. It will be ready for service when technical and operational evaluation has been completed and will enhance Navy and Marine Corps tactical firepower greatly.

The TYPHON surface-to-air and surface-to-surface missile system has progressed. A prototype weapon control system is being manufactured for installation in U.S.S. *Norton Sound* during her conversion in late 1962.

Satellites—TRANSIT IVB, the fifth satellite in the development of the TRANSIT navigational satellite system, was successfully placed in orbit in November 1961 and demonstrated the workability of an

operational prototype very similar to the satellite which will be used for navigation trials and demonstrations. An initial demonstration of the capability of the system is expected in October 1962.

Operational reliability of SPASUR has been improved materially in the past year. When the automatic on-line tie-in of receiver stations with the computer at headquarters is completed, unknown satellites can be detected and their orbits computed rapidly.

Weather Data—The Fleet Numerical Weather Facility, Monterey, Calif., has contributed to the development and distribution of air/sea environmental analyses and predictions for fleet use. The facility developed efficient and rapid automatic data-processing methods to sort, edit, and verify large volumes of weather data for input to computers; an operational program for hemispheric numerical analyses and forecasts of surface pressure patterns; and techniques for numerical analyses and forecasts of oceanographic conditions in support of naval operations.

The Navy Oceanographic Meteorological Automatic Device (NOMAD) was developed jointly by the Navy and the National Bureau of Standards to serve as a platform for synoptic observations in remote ocean areas. It remains at sea unattended for periods of 6 months or more during which meteorological data are automatically transmitted by radio to shore stations.

A NOMAD anchored in approximately 2,000 fathoms of water in the Gulf of Mexico reported barometric pressure, air temperature, sea temperature, wind speed, and direction during Hurricane Carla. Some minor structural damage was caused by high winds and seas, but modifications to prevent recurrence are under development and test. Networks of similar buoys are planned for the near future with the possibility of satellite interrogation for data collection as a longer range plan.

Oceanography

The National Oceanographic Data Center, established last year, is proving a valuable asset to the Navy and the Nation. Close coordination of the center with other Government agencies and the scientific community is enhancing the exchange and utilization of oceanographic information. International cooperation in oceanography and navigation has improved markedly.

Naval Communications

Successful employment of American seapower is dependent to a major degree upon the effective exercise of command, control, and coordination of our naval forces by naval commanders. The require-

ments for speed, reliability, and security in naval communications are traditional. These requirements are growing with the increasing complexity of naval operations. This necessitates constant improvement in equipment and techniques if capability is to keep pace with requirements. Such improvement is being accomplished as funds can be made available.

U.S. Naval Observatory

Celestial charting, celestial prediction, and time determination comprise the scientific operations of the Naval Observatory. Ten specialized telescopes are used to observe continuously the sun, moon, planets, stars, and other celestial bodies for the purpose of determining positions and motions and for maintaining accurate time. Predictions are computed and published in navigational almanacs and related volumes for use by navigators, scientists, and those concerned with astronautics. The seven different kinds of time maintained by the Time Service are integrated into an international broadcast system giving worldwide coverage.

III. The United States Marine Corps

During fiscal year 1962 the Marine Corps achieved its highest degree of combat readiness since the Korean war. The gradual decline in personnel strength was reversed. The expeditionary capability of Marine aviation was greatly improved as several developmental projects came to fruition. Deployment of Fleet Marine Force ground and aviation units to southeast Asia created additional opportunity for serving the interests of the free world in a decisive manner. Valuable joint and combined training was accomplished. The Navy's commissioning of two new amphibious assault ships (LPHs) represented a long-awaited improvement in strategic mobility.

Within the supporting structure the Marine Corps Schools system underwent some changes, keeping pace with modern-military requirements.

Several improved management techniques were adopted in planning, programing, and budgeting, and certain changes, limited in scope but nonetheless important, were made in the structure of Headquarters, Marine Corps, and the Fleet Marine Forces.

Employment of Forces

The Fleet Marine Forces, over 116,000 strong, consist of three combat divisions, three aircraft wings, and reinforcing units. These combatant forces are assigned to the Atlantic and Pacific Fleets. The employment of Marine forces, therefore, is directed by the appropriate fleet commander-in-chief in response to plans originated by the commanders of the unified Atlantic and Pacific commands.

Marine divisions and aircraft wings together with their reinforcement and service support components are employed as teams. A division-wing team is a powerful striking force which includes approximately 40,000 Marines, 300 combat aircraft, and a wide variety of ground and aerial weapons and equipment. One such team is assigned to the Atlantic Fleet and two are assigned to the Pacific Fleet.

Though a division-wing team is a single entity, it also serves as a reservoir from which smaller air-ground units are organized for

special purposes. Routine deployment of such task organizations included the following:

1. Landing Force Mediterranean—a battalion landing team augmented with helicopters and assigned to the Sixth Fleet.

2. Special Contingency Landing Force—a battalion landing team maintained afloat or ashore in the Caribbean area as part of the Second Fleet.

3. Special Landing Force—a battalion landing team maintained aboard ships of the Seventh Fleet in or near the South China Sea.

4. One jet aircraft squadron assigned to carrier air groups of the Sixth Fleet in the Mediterranean.

5. Two jet aircraft squadrons located at Roosevelt Roads, Puerto Rico, and Guantanamo Bay, Cuba.

Elsewhere in the operating forces, approximately 2,600 Marines serve with Marine detachments aboard 45 ships of the Navy. Some 400 Marines are assigned to Navy staffs. In addition, more than 800 Marines provide security for State Department installations at 93 foreign service posts in more than 70 foreign countries.

Marine Corps Objectives

Principal objectives for fiscal year 1962 were sixfold:

1. To maintain and improve combat readiness in all its manifestations—personnel, materiel, and training.

2. To reach the newly authorized strength of 190,000 rapidly and in orderly fashion, making maximum effective use of existing training resources.

3. To increase the manning level of aviation units above 90 percent, with particular emphasis on providing sufficient numbers of those personnel requiring highly technical training.

4. To improve planning and programing and the related functions of landing force research and development.

5. To improve logistic support of and within the Fleet Marine Force through more effective use of mechanization but without placing sole reliance on machines.

6. To reorganize the Marine Corps Reserve to be more capable of providing, within a month, a fourth division-wing team.

Marine Corps Organization, Operations, and Training Organization—The organization of Headquarters, Marine Corps, was subjected to a comprehensive study by a high level board of Marine officers. The board was concerned with effecting personnel economies and achieving a greater efficiency. Partly as a result of the board's

study, some adjustments within presently authorized ceilings have now been made in the Headquarters structure, notably:

1. The Office of Deputy Chief of Staff (Air) was created.
2. The Office of Deputy Chief of Staff (Plans and Programs) was expanded to improve Marine Corps planning and programing efforts and to facilitate support in joint matters.
3. The Office of the Deputy Chief of Staff (Research and Development) was expanded to improve management of the R&D program.

The combat structure has also been under scrutiny in an extensive Troop Test Program which has been underway since 1960. Phase I, the combat unit evaluation phase, was completed in the field last year. Results of the Phase I test have been analyzed at the Marine Corps Landing Force Development Center, Quantico, Va., and at Headquarters, Marine Corps. In large measure they confirmed the adequacy of the existing structure of Fleet Marine Force units although some evolutionary changes have been introduced.

The well-known 13-man rifle squad will soon take on a 14th member to be armed with the M79 grenade launcher. Division artillery was reduced from eight to six guns per battery. In the near future each direct support battalion will be composed of three 105mm. howitzer batteries and one 4.2 in. howtar battery. The howtar is a 4.2 in. mortar mounted on a pack howitzer carriage, a combination which provides, on an interim basis, a helicopter-transportable artillery weapon.

A year-long study of the Marine Corps Reserve was completed and plans were approved for reorganizing the reserve establishment effective July 1, 1962. Within the 45,500-man organized reserve, nearly half the 218 ground units and all 86 aviation units were affected. These plans enable the Marine Corps to have in being within its organized reserve the principal elements of the 4th Marine Division, 4th Marine Aircraft Wing, and selected Force Troop units.

A series of mobilization exercises has been held to test procedures for bringing Marine Corps reserves to active duty under emergency conditions. Existing procedures have been refined or modified in light of the experience thus gained, with a marked improvement in speed and efficiency.

Plans have been made to predesignate 24 Naval Reserve surgical teams for Fleet Marine Force duty. In addition, two collecting and clearing companies have been approved for drill-pay status within the organized reserve. The latter two units will be a nucleus for the medical battalion of the 4th Marine Division.

Operations—Some deployments were made in response to international developments. In April 1962, at the request of the Govern-

ment of South Vietnam, a Marine task unit of the Seventh Fleet deployed to Soc Trang. A medium helicopter squadron formed the nucleus of the task unit, with its support drawn mainly from a detachment furnished by a Marine Air Base squadron.

When military action heightened in Laos during June 1962, the assistance of U.S. forces was requested by the Royal Government of Thailand. Forces were provided by the U.S. Army, U.S. Air Force, and the U.S. Navy and Marine Corps. A balanced air-ground team, consisting of a battalion landing team, a helicopter squadron, a fixed-wing jet attack squadron, and a support group which included elements of a Navy mobile construction battalion, was furnished from the Fleet Marine Force.

These forces were deployed quickly and without incident. Forward deployment of major combat forces with the Seventh Fleet makes possible the rapid commitment of air-ground task organizations in southeast Asia.

Training—A special language training program was inaugurated in the Marine Corps Schools, Quantico, Va., for selected officers already possessing some language ability. The program was designed to develop in each student a basic conversational proficiency in French or Spanish. The goal is to assure that Marine officers have a vocabulary sufficient to accomplish routine tasks, movements, and business while performing duty in a French- or Spanish-speaking area. After July 1, 1962, all officers attending Marine Corps Schools residence courses will receive regular formal language instruction. Field commands have been directed to emphasize foreign language study within off-duty education programs.

Increased emphasis has been placed on individual and unit training in counter guerrilla warfare and counterinsurgency operations. The Marine Corps Schools system provides instruction in the theory and practice of both these forms of warfare. A newly devised course of instruction has been introduced to train senior officers in planning and conducting counterinsurgency operations.

Fleet Marine Force units have increased the tempo of instruction and field training in counterinsurgency operations, but without sacrificing training in the amphibious specialty. Landing exercises ranging from the level of battalion landing teams to division-wing Marine expeditionary forces were conducted throughout the year in such areas as Hawaii, Okinawa, Thailand, Korea, Puerto Rico, the Philippines, and the littorals of the Mediterranean.

During April and May 1962, the four U.S. armed Services conducted Exercise QUICK KICK, a joint amphibious and airborne exercise, on the east coast of the United States. All available combat

resources of Fleet Marine Force, Atlantic, were employed. Marines participating in QUICK KICK first conducted an expeditionary force amphibious exercise (LANTPHIBEX 1-62) at Vieques, Puerto Rico. Upon its completion, the 2d Marine Division, 2d Marine Aircraft Wing, and other supporting Fleet Marine Force units returned to the continental United States for their part of the joint exercise.

SEATO Exercise TULUNGAN (Filipino expression meaning mutual assistance) was conducted in March 1962. The U.S. Navy-Marine team in the western Pacific furnished most of the forces for this exercise, supported by U.S. Air Force aircraft. Filipino Navy and Marine forces and some Australian forces participated. The western Pacific division-wing team formed a Marine expeditionary force for the landing in the Philippines. Troops stormed ashore in a combined helicopter-borne and surface assault. Subsequent air-landed operations were supported by the 315th Air Division, USAF. The exercise provided valuable combined experience in major amphibious operations in an expeditionary and counterinsurgency environment in southeast Asia.

Several training exercises of a smaller scale took place. In September 1961 a Marine expeditionary brigade took part in CHECKMATE II, a NATO exercise in the eastern Mediterranean. Units of Greece and Turkey also participated. In October 1961 U.S. Marines and Royal Marine commandos tested their assault landing skills at Bomba, Libya, in Exercise WHITE BAIT II. Later, at Sattahip in Thailand, Thai Marines and personnel from the 3d Marine Division's Reconnaissance Battalion conducted a combined jungle warfare exercise.

For the first time, Marine reservists deployed outside the continental United States for their 2-week active duty training. Marine Corps KC-130F (formerly GV-1) and MATS aircraft transported an infantry battalion and two engineer companies to Vieques Island, Puerto Rico. Operating with regular Fleet Marine Force units, the reservists performed surface and helicopter landings, executed a series of night problems, and conducted live firing and other tactical exercises. Base development projects were also accomplished.

Marine Aviation

The old propeller fighter-bombers have now disappeared from Marine aviation inventories. Modern jet aircraft like the F-8 (formerly F8U-1) Crusader and A-4 (formerly A4D) Skyhawk are in wide use today. Even more versatile aircraft are coming along, such as the F-4 (formerly F4H) Phantom II.

Vertical assault operations are made possible by the 13 helicopter squadrons organic to the Marine Corps. Throughout 1961 and 1962 these squadrons conducted routine flight training, helicopter landing exercises from amphibious assault ships, and tactical and logistical support in a ground combat environment. In addition to these routine operations, helicopter squadrons performed such diverse missions as:

1. Support of Project MERCURY, NASA's astronaut program.
2. Support of the Pacific nuclear test series.
3. Support of the Marine expeditionary unit which deployed to Thailand in June 1962.

Since its infancy Marine aviation has sought to maintain an expeditionary quality equal to that of the ground forces. This year saw the realization of several major goals which have materially improved this capability.

The problem of austere manning levels had hampered the readiness and endurance of aviation squadrons for several years. The personnel shortages have now largely been overcome. A carefully integrated program of training, particularly in fields requiring technical skills, has brought unit strengths to an acceptable level, one which will support deployment and sustained operations afield.

Another area of importance to the Marine Corps has been receipt and active use of aerial refueling aircraft. Three squadrons of KC-130F (formerly GV-1) refuelers have been activated. In January 1962 a squadron of F-8 (formerly F8U-1) jet fighter aircraft, flying in three increments, spanned the Pacific. The aircraft deployed from the continental United States to Japan by means of aerial refueling with only three stops en route. In March 1962 a squadron of A-4 (formerly A4D-1) jet attack planes followed suit. Squadrons making future trans-Pacific deployments will use these same techniques. Compared to surface deployment, the savings of time and money have been significant. Of greater importance, however, is the improved organic capability to place land-based tactical aircraft in an objective area early in an operation.

Airfields in the objective area are a matter of great importance to a landing force. Heavy jet aircraft with high landing speeds normally require several thousand feet of concrete runway plus sophisticated repair, maintenance, and refueling facilities. In order to overcome dependence on such fields, the Marine Corps has been developing a small airfield for tactical support (SATS). All major components of the system, except an expeditionary catapult, had been developed during or prior to 1961. Work on the catapult progressed satisfactorily and in February 1962 the first launch of a combat aircraft took place. Although the catapult does not yet meet combat operational

standards, it represents an important accomplishment in Marine Corps development activities. In the interim, jet aircraft can make full use of SATS by employing after-burner or jet-assisted takeoff (JATO).

Landing Force Research and Development

The first Tactical Air Operations Center (TAOC), a major component of the Marine Tactical Data System (MTDS), was delivered in September 1961. A second TAOC was delivered in June 1962. Both are undergoing testing in California. The MTDS was designed to accept, store, process, and display data from radars and manual inputs. When operational, this helicopter-transportable system will enable the air commander to evaluate the entire air situation and make timely decisions on the use of offensive and defensive aircraft and missile elements under his control.

At the Marine Corps Landing Force Development Center, Quantico, Va., tests have established the feasibility of the PRC-38, a single side-band, man-pack, tactical radio (transceiver). Service test models are being delivered.

Landing vehicle development continued to maintain high priority among Marine Corps R&D efforts. A development contract was negotiated for the LVTPX-11 which will be a follow-on for the present assault amphibian tractor, the LVTP-5.

Prototype construction has commenced on two new high-speed logistic support vehicles: The LVW which incorporates a planing-hull design and the LVH which utilizes hydrofoils. The Swamp vehicle has also progressed to the prototype stage and models of these $\frac{1}{2}$ -ton and 5-ton support vehicles are now undergoing test. The Swamp gives promise of maximum mobility in marginal terrain.

Development is underway on self-contained helicopter-transportable huts for division-level photographic and reproduction work. The Marine Corps is also conducting an active research project to improve its expeditionary fuel storage-and-handling equipment. This project seeks to achieve higher capacity and greater pumping range for the Amphibious Assault Fuel System (AAFS). This and related systems are employed in an amphibious environment for refueling vehicles and aircraft. Any improvements in the AAFS have great potential significance for the support of the SATS.

Finally, better management of the total Marine Corps research and development effort has been achieved. An improved R&D program document now covers all operational requirements with matching materiel developments. This document constitutes a major advance in R&D planning and programming.

Personnel Plans, Policies, and Programs

Strength—From a personnel standpoint, fiscal year 1962 was a most significant period. The Corps had only recently been authorized to increase its manpower from 175,000 to 178,000 when the Administration authorized a second increase—to 190,000. The expansion was accomplished before the end of December 1961 mainly through voluntary enlistments. Recruitment remained highly selective.

The most important effect of the strength increase was availability of more Marines in the operating forces, particularly within the Fleet Marine Forces. Aviation units, previously restricted to manning levels ranging from 70 percent to 80 percent of Tables of Organization, were increased to levels above 90 percent during the year. Combat efficiency has been materially improved by virtue of these steps.

Officer Programs—Marine Corps officer strength was increased this year from 16,100 to 16,900, of which 10,600 billets are authorized for regular officers. There were 9,000 regular commissioned officers and 1,300 warrant officers on active duty. The remaining 6,300 were reserve officers, approximately half of whom were reserve lieutenants with obligated service.

A new career reserve program has been devised to provide career opportunities for reserve officers serving on either a standard written agreement or extended active duty. Qualified officers may execute a series of contracts and remain on active duty for specified periods leading to eventual retirement upon completion of the required 20 or more years. Results of this program have thus far been excellent.

A warrant officer helicopter pilot program was initiated to make more effective use of trained manpower. Sixty Marines were selected for this program from among naval aviation pilots (enlisted) and former naval aviators.

Under provisions of Public Law 86-155 ("hump" legislation), fiscal year 1962 was the third year in which zones of consideration were used in conjunction with a promotion zone for selection of majors to lieutenant colonel, and in which colonels and lieutenant colonels who twice failed of selection were involuntarily retired short of 30 and 26 years of commissioned service. "Hump" legislation will expire in the fiscal year 1965 unless extended by the Congress.

Public Law 87-123 remitted the restricted status of former supply duty only (SDO) officers. All SDOs were reassigned to the status of unrestricted officers during the year.

The Women Marine Officer program also underwent change this year. No sophomores and only a few juniors were accepted, and a single 10-week training program for candidates replaced two separate 6-week periods. In addition, women Marine officers are now required

to serve for 3 years after commissioning instead of the 2 years formerly required. The new program is expected to produce higher selectivity and diminish the attrition of candidates.

Enlisted Programs—Nearly 36,000 recruits passed through the Recruit Depots at Parris Island, S.C., and San Diego, Calif. Continued emphasis was placed on long-term enlistments.

Noncommissioned officers accepting promotion to E-8 and E-9 pay grades must now agree to remain on active duty for 3 years after accepting their promotion. This requirement was first levied during fiscal year 1961 with the view of assuring optimum professional caliber among the noncommissioned officers.

Logistic Support of the Marine Corps

In the logistic field, emphasis was placed on the orientation and education of commanders and their staffs concerning their responsibilities in supply and financial management. A Marine Corps-wide logistics conference was held in which all major commands participated, and the Marine Corps Schools incorporated more comprehensive instruction in certain aspects of logistic support.

As a matter of standing operating procedure, mount-out supplies are maintained in a ready status by Fleet Marine Force units. These ready supplies accompanied Marine forces which were deployed in response to actual operational requirements. In addition, the Chief of Naval Operations and the Commandant of the Marine Corps granted administrative release of automatic replenishment supplies. Since combat did not ensue, no replenishment supplies had to be shipped and mount-out supplies remained intact ready for the next emergency. A resupply drill involving Fleet Marine Force, Pacific, Navy and Marine supply activities, and Defense transportation management agencies was held in March 1962 to test adequacy of replenishment plans and procedures. Work has now begun on a routine updating of those plans, the efficacy of which has been time-tested and validated.

Issue of the NATO family of small arms began this year and is proceeding according to plan. All east coast Fleet Marine Force units have received their new weapons, ammunition, and spare parts. Issue of the 7.62mm weapons to other units is scheduled for completion next year.

An extensive tank modernization program has been approved. Existing M-48 medium and M-103 heavy tanks will undergo refitting. Diesel engines will be installed, present sighting devices are to be replaced by a simpler though accurate device, and heat-suppression grilles will be added. The net result of the program will be to

improve range, reduce maintenance, simplify gunnery, and extend the life of tanks in the present inventory at minimum cost.

Punchcard computers have been provided at major installations to mechanize routine aspects of personnel, supply, and fiscal management. This step resulted in elimination of 82 military and civilian data-processing billets and reduction of \$56,000 per year in machine rental in those areas. The savings enabled the Marine Corps to staff mobile data-processing platoons within the present personnel levels. These mobile platoons became organic to the divisions, wings, and Force service regiments during fiscal year 1962.

IV. Naval Personnel

Fiscal year 1962 personnel strength of the Navy was predicated initially upon a beginning total of 627,100 and an average of 627,800. As a result of the buildup incident to the Berlin crisis, an end-year strength of 666,000 was later assigned. To reach this level, recruiting and officer procurement were increased, selected reserve units were recalled, and active duty tours of both officer and enlisted personnel were extended. The desired objective was achieved in February 1962.

Officer Personnel

Results of the intensive voluntary retention-recall campaign, launched in fiscal year 1961, continue to be most encouraging. When the program began, our ability to man lieutenant billets in the unrestricted line category was only 70 percent; it is now 89.5 percent. This increase is even more noteworthy when it is realized that the requirement for officers in this grade has increased by over 1,900 during the same time.

Despite this improving trend, retention of experienced personnel is still one of the Navy's most pressing long-range problems. Advanced equipment and operating techniques have generated requirements for officers capable of demonstrating both military leadership and technical competence of the highest order. Additional incentives must be provided in order to procure and retain personnel of this caliber on a career basis in adequate numbers.

In an effort to meet increasing demands for technical competence the Chief of Naval Personnel has introduced a new procedure in the selection of officers for postgraduate training. Under a new "educational group" concept, every officer is automatically considered for postgraduate education upon completion of his first operational sea tour, without need for formal application. Although still in its infancy, this procedure has resulted in substantial improvement, and indications point toward increased utilization of the talent available for the postgraduate program.

Associated with the foregoing and in response to current and projected demands for technically trained officers in areas associated with new and sophisticated weapon systems, the subspecialization

concept has been revitalized. Technically trained unrestricted line officers are now utilized to the maximum extent feasible in areas associated with their special training. This action may hinder the assignment of officers to duties which span the broad spectrum of the Navy's work and interests; however, it is necessary if we are to cope with demands of the missile age.

A related area of concern is the growing demand for academic talent to fill the needs of special programs within the Navy, with the result that fewer regular officers of high academic potential will be available for other important programs of a continuing nature.

The problem of meeting officer requirements and maintaining a satisfactory level of fleet readiness in this respect continues to be enlarged by requirements for officers in activities external to the Navy. Assignments necessitated by the growth of international staffs and Defense agencies continue to increase. They are important and most require senior officers. The impact of these requirements has been absorbed within the authorized strength of the naval establishment. In order to maintain a reasonable rank structure within personnel levels, it has been necessary to "gap" many billets, some for long periods, and to adjust the grades of billets.

Enlisted Personnel

Extension of enlistments helped to increase the enlisted strength of the Navy by approximately 7,000 during fiscal year 1962. The average extension period was for 5 months. Men selected for extension were chosen on a "needs-of-the-service" basis to fill skill requirements both at sea and ashore. All men whose enlistments were extended were eligible for release by June 30, 1962.

A positive approach to the Navy's reenlistment problem has been initiated, embodied in a Career Information and Counseling Program. The immediate objective of this program is to insure that all first enlistment men are fully informed throughout the full term of the first enlistment. New materials and stronger directives have provided for increased activity in this area.

Selective Training and Retention (STAR) Program—The STAR Program, implemented in September 1960, is designed to fulfill two primary requirements—increase first term reenlistments and afford an early career identification of enlisted personnel in critically undermanned ratings. As in the previous year, the fiscal year 1962 program provided guaranteed formal school training and specific advancement benefits in return for early reenlistment by first term personnel for a period of time which would total seven or more years of service. There were 5,231 reenlistments. Of the 3,728 petty officers and designated

strikers included in this total, 78 percent were in critically undermanned ratings. Of the grand total, 4,603 or 88 percent were 6-year reenlistments which continue to provide an excellent return on the training investment. Additionally, a great career potential is inherent in the long-term STAR reenlistment.

Selective Conversion and Retention (SCORE) Program—This is a new program, implemented in November 1961, and is designed to improve the career strength of all Navy rating groups by defining a path whereby personnel in overmanned ratings can convert to critically undermanned ratings. It is designed and administered in such a manner that quality rather than quantity is the goal; that is, successful conversion from the original rating to a new critical rating is the test.

Eligible personnel have a minimum of 2 and a maximum of 12 years active military service or are in pay grades E-3 (designated strikers), E-4, and E-5. These personnel must reenlist for 6 years or agree to extend a present enlistment a total of 6 years remaining obligated service. An integral part of the program requires that an officer be personally responsible for counseling each SCORE applicant and developing an appropriate recommendation in each case.

The number of personnel reenlisting or extending under SCORE totaled 1,167. Of this total, 72 percent were converting to various critical electronic ratings.

Proficiency Pay—The Navy began this year with the authorization to award proficiency pay to 11.5 percent of its total enlisted strength. Funds provided for the purpose totaled \$18.44 million. To assure equity in the awards, an additional \$2.11 million was authorized in view of the emergency increase in strength.

P-1 awards at \$30 to P-2 awards at \$60 were authorized to career petty officers only. P-2 awards were authorized only to career petty officers in critical ratings. To orient them more specifically toward critical ratings, commanding officers were granted authority to authorize P-1 awards to petty officers in such ratings without written examination. P-1 awards to petty officers in other ratings and all P-2 awards were based on Navy-wide written examinations.

Inaugurated at the close of the year, a new P-2 award program is directed toward highly skilled technicians in such specialties as nuclear propulsion, weapon system maintenance, and other electronic systems. These "Programed P-2" awards will be made without examination to all career petty officers who are assigned certain enlisted classification codes and are working in the skills represented by the codes.

Advancements in Rating—There were 153,797 advancements for petty officers in fiscal year 1962, exceeding the previous year by 21,177. In

the junior petty officer pay grades (E-4 thru E-6), these advancements reflected the increase in the ratio of rated to nonrated personnel. Advancements to the senior petty officer pay grades (E-7 thru E-9) continued, as last year, to reflect the exodus to the Fleet Reserve of the 20-year personnel who entered the service during World War II.

The master and senior chief petty officer pay grades are still phasing in. The schedule is due to be completed next fiscal year with final phase-in of the E-9 pay grade.

Recruiting

Enlisted Personnel—The Navy Recruiting Service enlisted 102,558 chargeable recruits this year. Of these, 67,220 were trainable; that is, they could be sent to formal Navy schools immediately following recruit training. This total bettered that of 1961 by more than 13 percent. Fiscal year 1962 exceeded all years since 1956 in chargeable male enlistments both in quantity and quality.

Enlistments effected under the High School Graduate Training Program increased 20.4 percent to 42,844. There were 11,780 of them in Mental Group IV (the lowest group), 11.5 percent compared to last year's 9.5 percent. WAVE enlistments and reenlistments effected during fiscal year 1962 totaled 2,364 (2,777 in fiscal year 1961).

This year 93.2 percent of the reenlistment goal of 9,364 was attained, compared to 93.5 percent of the 10,931 goal for fiscal year 1961.

Officer Personnel—The 635 Aviation Officer Candidates (baccalaureate level) comprised 74 percent of the quota, compared to 65 percent last year. In contrast, the number of new Naval Aviation Cadets (2-year college level) was 562, 114 percent of quota. In-put to the Naval Aviation Officer Candidate Program totaled 607 or 58 percent of quota, whereas 60.3 percent of quota was attained in fiscal year 1961. The Regular NROTC Program quota, which was increased by 500 to 2,300, is expected to be met.

Enrollments into the Officer Candidate School at Newport, R.I., were significantly higher—4,248 compared to 2,473 in the previous fiscal year. Reserve Officer Candidates increased by 330 to a total of 852, 85 percent of quota. However, recruiting efforts filled but 54 percent of the WAVE Officer Candidate quota, 11 percent below fiscal year 1961 and the lowest since 1958.

A shortage of 114 physicians was alleviated by resorting to the Selective Service System, while 72 percent of the Nurse Corps officer quota was filled. Unless recruitment improves, Nurse Corps strength may become critical within the next year. It is hoped that a recent change in the nurse officer candidate program will help.

Education and Training

Noteworthy in this year has been the increased attention given to training for surface-to-air missiles. Great effort has been made to improve quality in the flow of personnel through schools into the fleets to occupy missile billets. The establishment of the new Schools Command at Mare Island, Calif., will provide a larger and better training facility for personnel destined for various missile systems.

Officer Training—Plans were perfected for an Inter-American Defense College which will convene in October 1962. This is an international educational institution operated as an organ of the Inter-American Defense Board. Students from almost all Latin American countries are expected.

During the year, 1,214 officers were under instruction in the post-graduate program—800 in the Engineering School and 94 in the Management School (both at Monterey, Calif.) while 320 naval officers were enrolled at cooperating civilian colleges.

A Defense Intelligence School authorized for establishment in the Washington area will absorb the programs now conducted by the Naval Intelligence School. The new school will be administered by the Navy. Training in air intelligence and photo interpretation has been placed under the responsibility of the Air Force, and foreign language training has been assigned to the Army.

Arrangements were completed for new postgraduate curricula in air-ocean environment, public relations, and subsistence technology.

The Navy's foreign language program is conducted primarily at the Naval Intelligence School, the Army Language School, and occasionally through the Air Force language program. Emergency and urgent language requirements are usually met by training at commercial schools. Approximately 150 officers and 300 enlisted personnel were enrolled in foreign language courses during the year.

Officer Candidate Training—The law governing the NROTC Program was amended on July 16, 1961, to the extent that graduates commissioned in the regular service no longer are required to request retention in the Regular Navy or Marine Corps or to stand selection for continuation therein. NROTC Regulars are now commissioned on the same basis as are Naval Academy graduates. Neither may resign from their regular status prior to the fourth anniversary of their original commissions.

The NROTC flight indoctrination program, approved by the Congress in 1956 for 4 years and extended in 1960 for another 4, was in operation at 32 universities and comprised a total of 220 students.

Enlisted Training—New schools were established for NTDS maintenance, radiomen, equipment operations, heating plant supervisors

(for Air Force personnel), and gunners' mates. A number of new technical courses were established in existing schools and a number of others were disestablished in adjusting the training program to keep pace with changing fleet requirements.

The use of civilian contract instructors was successfully inaugurated at the Electronics Technicians School at Great Lakes, Ill. Eighty-four civilian instructors were used in this program, and it is planned to increase the number to 100 next fiscal year.

Functional and Fleet Training—Training loads to support submarine and surface missile programs continued to increase to meet requirements of new shipbuilding programs.

The U.S. Naval Schools Command was established at Mare Island, Calif., to meet expanding surface missile training requirements. Component activities include schools for Guided Missile Weapon Systems, Naval Tactical Data System, and Cryptographic Repair. Complete TARTAR, TERRIER, and TALOS missile and missile fire control training will be provided at the Guided Missile Weapon Systems School.

A TYPHON training unit was established at the Westinghouse Electronics Plant, Baltimore, Md., to develop training materials and conduct initial training in this new missile system.

The Nuclear Power School was established at Bainbridge, Md., and the Nuclear Power Department of the Submarine School at New London, Conn., was discontinued. Construction was started on a Fleet Ballistic Missile Submarine Training Center at Charleston, S.C., to meet expanding requirements for training of the off-duty FBM submarine crews. A Destroyer Officers' School was established at Newport, R.I.

Instruction in varied aspects of unconventional warfare was instituted at the Naval Amphibious Schools at Little Creek, Va., and Coronado, Calif., to provide the UDT/SEAL organization with capabilities in this area. In addition, certain other courses conducted at the U.S. Army Special Warfare Center, Ft. Bragg, N.C., are being utilized for naval officers being ordered to duty in Military Assistance Advisory Groups (MAAGs) and naval missions located in sensitive areas. All naval personnel en route to duty in sensitive areas are undergoing an intensive 2-week course of instruction which encompasses self-protective measures, escape, evasion and survival techniques, and area familiarization.

Training of sonarmen in electronics and electricity has been expanded at both the Fleet Sonar School, Key West, Fla., and the Fleet Antisubmarine Warfare School, San Diego, Calif., in order to prepare sonarmen better for maintenance of the more complex underwater fire control systems and sonar equipments being procured by the Navy.

Advance personnel and equipment for the Fleet Computer Programming Center, Atlantic, arrived at Fleet Anti-air Warfare Training Center, Dam Neck, Va., during April, May, and June 1962. The Fleet Computer Programming Center is expected to be fully operational by June 1963.

Instruction Methods and Materials—Over one thousand different courses and curricula were required and in use during fiscal year 1962. It was necessary to revise 188 to keep pace with new developments and an additional 101 new curricula were developed to provide training in new equipment and procedures.

The increasing complexity of electronic equipment has necessitated extensive revision of training programs and curricula materials for technicians and for operator ratings who have supporting maintenance responsibilities. Reorganization of Missile Technician courses was completed in order to provide short courses on specific equipment to which the fleet could send personnel for training without permanent transfer or long-term temporary additional duty.

Course materials for TERRIER and TALOS weapons control systems were developed and pilot courses conducted at the Guided Missiles School, Dam Neck, Va. Similar course materials for TERRIER missile fire control systems were developed and a pilot course was begun at the Fire Control Technicians School, Great Lakes, Ill.

Information Programs—Ships and other Navy and Marine Corps units totaling 25,000 personnel deploying for oversea destinations have received briefings on "Overseasmanship" designed to prepare them for their representative roles as U.S. citizens in foreign countries.

Negotiations are being conducted to obtain television programming for the 18 ships presently equipped with closed circuit television.

In a revision of the Tuition Aid program, the maximum Navy contribution has been increased from \$7.50 to \$13.50 per semester hour, and the restriction on the participation of first term enlistees has been eliminated.

Physical Fitness—A physical fitness program was instituted in September 1961. It requires that all personnel under 40 years of age be tested periodically and meet certain minimum physical achievements. The program has generally been well accepted and there is evidence of over-all improvement of physical fitness since its inception. Test results are now being evaluated. Standards will be adjusted as appropriate to maintain the desired level of physical fitness.

Promotion and Advancement

The "hump" legislation, Public Law 86-155, has been effective in providing planned officer promotion management. A 45 percent

opportunity for Regular Navy promotion to the grade of captain has been maintained. The opportunity for commander grade was 75 percent this year, and will remain at that level for the foreseeable future.

Selection boards screened out 191 regular line and staff captains and 126 commanders in the fiscal year 1962. Plans for next fiscal year provide for maintaining the 65 percent continuation rate for captains as in the past, but increase the rate to 100 percent for commanders since vacancies from this source are no longer needed in the grade. The law, however, specifies that commanders will be reviewed by a continuation board in the year that they fail of selection the second time. The only commanders reported by these boards will be those, as provided in the law, whose record of performance would not justify their retention on the active list under any circumstances.

The "hump" law expires on June 30, 1965. The need for its renewal is under study.

The Naval Reserve

At the beginning of fiscal year 1962, the Naval Reserve comprised 716,045 officers and men, including reservists on active duty. This number had decreased to 624,046 by June 30, 1962. The sharp drop resulted from an unusually large number of enlistment expirations, and is expected to prevail through July 1963.

The objective of 135,000 in drill-pay status established by the Secretary of Defense was continued in this year. The paid drill strength was 129,948 on June 30, 1961, 111,280 on June 30, 1962. The reduction was due mainly to the recall of some 8,000 Selected Reservists to active duty in October 1961 and to fewer personnel being released to inactive duty. Reservists on active duty, and Regulars who would normally have been released and available to affiliate with a Selected Reserve unit, were extended on active duty during the international tension over the status of Berlin.

The Antisubmarine Warfare Component (Air and Surface) of the Selected Reserve, called to active duty during the Berlin crisis, comprised 40 DD/DE type ships and 190 aircraft in addition to its 8,000 officers and men. This action added a new dimension to the Naval Reserve—augmenting the Naval Establishment to aid in preventing a war. It pointed up the need for maintaining a high state of readiness at all times. To do so, the active duty training program of the Selected Reserve will continue to be directed toward maximum participation in fleet operations and exercises along with units of the fleet which they will support or augment when ordered to active duty.

trials, although she underwent tests and maneuvers so severe that they may never again be equaled.

Construction of the *America* (CVA-66) proceeded well. This is an improved *Forrestal*-class ship, as will be the carrier in the fiscal year 1963 program.

Three nuclear-powered submarines (other than FBM submarines) were commissioned during the year. This brings to a total of 17 the number of completed non-POLARIS-type nuclear-powered submarines. Fifteen more were awarded or assigned by the end of the year and still another 8 were authorized in the fiscal year 1963 program, which will bring the grand total to 40.

The eight attack submarines in the 1963 program will be *Thresher*-class ships which, among other special capabilities, will be able to fire the submerged-launched rocket weapon SUBROC. This weapon can carry nuclear warheads capable of destroying either submarines or surface ships.

A total of 32 new or converted guided missile surface ships has been completed. Among the nine delivered during fiscal year 1962 was *Long Beach* (CG(N)-9). After sea trials and successful firing of her TALOS and TERRIER missiles in January 1962, *Long Beach* entered the Philadelphia Naval Shipyard for a postdelivery servicing. During this period she will receive the powerful precision height-finding radar AN/SPS-33, the NTDS, and additional missile equipment.

Two more guided missile frigates were delivered, completing all of the Navy's first class of frigates. Next to come will be *Leahy* (DLG-16), lead ship in the subsequent 8-ship class. The nine *Belknap* (DLG-26) class ships are progressing well.

Bainbridge (DLG(N)-25) neared completion toward the end of the year, and the contract for construction of the DLG(N)-35 in the 1962 program was awarded. The latter ship will be very similar to its predecessor, with some improvements. Both will have a helicopter landing area, but the DLG(N)-35 will also have a hangar and will carry either drone or manned helicopters for enhanced antisubmarine warfare capabilities. Its electronic gear will include the AN/SQS-26 bow-mounted sonar, the AN/SPS-48 three-coordinate radar, the NTDS, and other very recent equipment.

Six guided missile destroyers were delivered and commissioned during the year, bringing the total completed to 12.

Contracts for the three guided missile escort ships in the 1962 program were awarded. Three more are authorized in next year's program. These will be similar to the DE-1040 class ships, but will have a TARTAR missile battery instead of a 5 in./38 cal. gun mount.

Amphibious Ships

The fleet received the first of a new generation of amphibious ships as two assault landing ships, *Iwo Jima* (LPH-2) and *Okinawa* (LPH-3), were delivered and commissioned. These ships are especially designed to embark, transport, and land troops and their equipment by helicopter. The ships can commit a landing force in an assault without being limited to good beaches and can establish a beachhead much faster than is possible with conventional landing ships.

Two more LPHs are building and another has been authorized in the 1963 program. They are designed to be used with amphibious transports dock (LPD), which will land troops and heavy combat equipment by helicopter and landing craft. The first of these LPDs was launched during this year. It employs the balanced load concept, incorporating the functions of the cargo carrier (AKA), troop carrier (APA), landing ship dock (LSD), and landing ship tank (LST). The LPD obviates many limitations inherent in a high degree of specialization.

Rapid progress was made in developing a high-speed, over-the-beach highline transfer technique which will make any existing amphibious craft more useful. The technique involves rapid transfer of cargo over a tensioned highline running from a ship or craft anchored offshore to a converted landing vehicle track (LVT) on the beach—or on a bluff or cliff. Use of the system permits operations over rugged beaches and rough surf that landing craft could not negotiate. A prototype LVT is now undergoing modification so that it can swim ashore, position itself, and function as a highline machine. In addition, an LCU is being converted to serve as the offshore base for the system. It will have a large A-frame to maintain the transfer line at an adequate height above water. Operational tests for the entire system are scheduled for fiscal year 1963.

Auxiliary Ships

Late in this year the decision was made to convert a small carrier-type to a command ship. Work began to fit out *Wright* (AVT-7; ex CVL) as a National Emergency Command Post Afloat (CC-2) for top echelon commands and their staff for the strategic direction of area or worldwide military operations. Facilities will be provided on this ship for worldwide communications and storage and display of command data. A second command ship conversion is included in the 1963 program.

Good progress is being made on the oceanographic research ships and surveying ships being built in support of the National Oceanographic

Research Program and in providing ships for use in missile range instrumentation and satellite communications work.

Late in the year, it was decided to convert two ships to technical research ships (AGTR) to provide a mobile base for research in communications and electro-magnetic radiation. Construction proceeded well on new auxiliary types such as the fast combat support ship (AOE).

The 1963 program includes modernization of two fleet oilers to increase their petroleum capacity from 100,000 to 150,000 barrels, while replacing and renovating pumps and deck gear to increase the transfer rate. Two conversions of ammunition ships (AE) will be made so that they will be able to handle and transfer TALOS and other missiles rapidly. The major communications relay ship (AGMR) in the 1963 program is designed to provide mobile communications for the Navy, with specially designed antenna systems capable of operating for long periods of time either underway or at remote locations. This ship has been approved during the 1962 program but was delayed in order to make funds available for the *Wright* (CC-2) conversion.

Rapid completion of POLARIS missile submarines led to inclusion in the 1963 program of still another POLARIS submarine tender, along with conversion of a cargo ship (T-AK(FBM)) so that it will be able to resupply completely a deployed POLARIS submarine tender. The program also includes conversion of a floating drydock (ARD) to provide the second deployment of POLARIS submarines with facilities for drydocking and limited repair.

The Future Fleet

Despite major progress in bringing the Navy up to modern standards, the threat of block obsolescence still looms large. Even with the completion of all current programs, including the 1963 program, only 43 percent of the fleet will have been built since World War II. Ships normally have a useful life of about 20 years. The bulk of the fleet's older ships—those built during World War II—will be obsolete in the next few years. Fleet rehabilitation and modernization programs have extended the life of many ships, particularly destroyers, beyond normal expectancies. Nevertheless, these FRAM programs have merely provided a grace period during which new construction replacements must be built in large numbers in order to avoid serious deficiencies in some categories.

During the fiscal year, the Bureau of Ships began preparing for future destroyer needs by establishing a combined Bureau of Ships and Bureau of Naval Weapons Program Management Office to work on Project SEAHAWK—the design of an advanced escort ship for

replacement of World War II destroyers. The primary aim is to design a truly integrated ship. Normally we design a ship's basic hull and machinery, then specify the installation of developed sensors, weapon systems, and other units. The SEAHAWK group will design a total system and then find or develop equipments that fit into the system.

The cost of building a truly modern Navy is high. Strenuous efforts, known as "Dollar Stretch," are being continued to reduce cost. The Bureau of Ships, a pioneer in military value engineering, continues to emphasize it along with careful review of design changes, meetings with private industry to stimulate cost-cutting ideas, and critical scrutiny of proposed sole source purchases.

Plans of ships which have been built in earlier programs are being reviewed to insure that they represent the latest and best engineering developments. For example, the missile escort ship design is being scrutinized by work study techniques in order to simplify equipment and systems and reduce the number of operating personnel, the first cost, and maintenance and operating expenses. The Bureau of Ships has initiated a systematic program to train a large number of its engineers in work study methods so that all new designs eventually will benefit from the use of this technique.

Meanwhile, the Navy is probing new frontiers in ways that give hints of the next generation of ships and advances in their equipage. Construction of several hydrofoil ships and craft was proceeding well and the hydrofoil submarine chaser *High Point* (PCH-1) neared launching at the end of the year.

The Navy began to explore a still more radical concept when it awarded a contract for design and construction of SKMR-1, the Navy's first sizable air-cushion ship. Sixty-two feet long, 28 feet wide, and weighing over 20 tons, it will be the largest air-cushion vehicle ever built in this country. Four fans will blow air under the research craft, lifting its aluminum hull about $1\frac{1}{2}$ feet above the water's surface. Two air propellers will drive SKMR-1 forward at 70 knots. Endurance at 50 knots is expected to be about 200 miles. This craft will enable us to study the practicability of applying the air-cushion principle to larger naval ships, where it might be used for amphibious landings, high-speed patrols, mine countermeasures work, or antisubmarine warfare.

Contracts were let for exploration of an unusual concept for amphibians which are called upon to operate in a wide variety of environment. The concept utilizes the Archimedes screw principle. An amphibian using the principle might look like a boat with fore-and-aft threaded rollers attached at the turn of the bilges. When the rollers rotate, the threads will operate like screw threads, screwing

the craft forward through water, often clogged with vegetation, and over sand, rice paddies, swamps, bogs, mud and earth banks, and occasionally over hard-surface roads.

Tests of improvements to landing craft included one in which a utility landing craft (LCUG-1620) was fitted with cycloidal propulsion. It proved remarkably maneuverable, being able to stop completely from full speed in three-quarters of a boat length, turn 360 degrees in less than 10 seconds in still water, and even move sideways. It retracted from the beach while fully loaded, turned around, and came out over a sand bar bow on. In addition to landing craft, cycloidal propulsion has possible applications to tugs, large landing ships, and submarines where extreme maneuverability and position-keeping in three dimensions are important capabilities. The Bureau of Ships is working on several aspects.

The Bureau is developing many improvements in submarines and their equipment. An example is a prototype 9-ton thermoelectric device designed to provide the sole source for cooling, heating, and dehumidifying the living and control areas of a submarine. Thermoelectric units capitalize on a phenomenon that occurs when electric current is applied to certain dissimilar metals which are joined together. One side becomes cold, the other hot. Reversing the current switches the temperature effect. Very precise temperature control can be obtained by regulating the amount and direction of the current. Seawater or air flowing past one side can carry off unwanted heat or coldness. The thermoelectric temperature control system eliminates the use of freon. The unit is compact, rugged, virtually silent, and requires minimum maintenance.

Work proceeded on developing a combined diesel and gas turbine propulsion plant for destroyer-type ships. The plant envisaged uses diesel engines to provide power up through cruising speeds and gas turbines for the extra power needed for full speeds, capitalizing on the light weight of gas turbines. Recent gas turbine developments and experience have made this system practical.

Much progress has been made in bringing modern ships to the fleet during this year. At the same time, work has pressed forward to reduce the threat of block obsolescence, to minimize cost, and to develop concepts for use in building the Navy that will replace the one we are now building.

VI. Development and Procurement of Weapon Systems

Progress of the Bureau of Naval Weapons

The Bureau of Naval Weapons has demonstrated the effectiveness of the combined air-ordnance organization. It responded rapidly to the accelerated weapons procurement, which telescoped a considerable number of program schedules and created a situation closely akin to mobilization. Current production rates were doubled and tripled where required. Both industry and naval shore activities responded quickly and efficiently to meet the accelerated requirements. Substantial gains were made in establishing multiple sources. Competitive subcontracting, through prime missile producers, was extended, and small business awards were expanded. Readiness was significantly improved in a relatively short period, and the Bureau's ability to meet and cope with an emergency was conclusively demonstrated.

Work continued on the long-range plan to integrate the ordnance and air components of the weapons establishment. Weapons field activities were reduced, and, where feasible, mission adjustments and combination of facilities are continuing to achieve economies and improved fleet support. A major step was the establishment of a special group to direct advancements of the TARTAR, TERRIER, TALOS, and TYPHON surface missile systems. This group is headed by a flag officer who reports to the Secretary of the Navy, with additional duty to the Bureau of Ships, Bureau of Naval Personnel, and Bureau of Supplies and Accounts for matters concerning the surface missile systems. The group is supported by components of the several line organization groups of the Bureau of Naval Weapons.

This was a year of good progress in naval weapons. Substantial improvements were made in certain aircraft, missile, ordnance, and support programs. Additional flexibility in choice of weapons has been achieved, particularly in the antiair and antisubmarine warfare categories, and strike weapons have made several notable advances.

Astronautics

The Pacific Missile Range—The Pacific Missile Range, managed by the Department of the Navy, is one of three national missile and space

support ranges. It supported approximately 10,000 launch and support operations this year. Launch operations increased approximately 20 percent over 1961 and the projected range workload indicates an additional 30 percent increase by 1964.

A new tracking station was established at Point Pillar, Calif. In conjunction with others at Point Arguello and San Nicolas Island, Calif., this station will provide range safety and data-gathering support for the intercontinental ballistic missile program. Instrumentation facilities for the three stations were scheduled for completion in August 1962. A new and improved range safety system was installed at Point Arguello.

A contract was awarded for conversion of the victory ship *Seton Hall* to a range instrumentation and recovery ship (AGM-8). The U.S.N.S. *Range Recoverer* was transferred from the Pacific Missile Range to NASA for use at Wallops Island, Va. The U.S.N.S. *Range Tracker* is presently stationed at Johnston Island in the Pacific, providing range safety, range instrumentation, communications, and control center for Joint Task Force 8 operations.

The Pacific Missile Range operates a complex of ground tracking stations for various research and development purposes. A number of them comprise a network for the TRANSIT navigational satellite program. A 60-foot "dish" antenna located at the San Nicolas Island station receives data from the weather satellite TIROS, which data is analyzed and supplied continuously to the weather headquarters of NASA in Washington, D.C. Three Project MERCURY stations under range management (Point Arguello and Canton Island, Calif., and Kokee Park on Kauai, Hawaii) provided tracking, telemetry, and communications for the successful orbital flights of astronauts Lt. Col. John Glenn, USMC, and Comdr. Scott Carpenter, USN.

Navigation Satellite (TRANSIT)—The Navy continued to make excellent progress in the TRANSIT project. In its successful launching November 15, 1961, TRANSIT IVB carried "piggy-back" satellite TRAAC (TRANSIT Attitude Control). TRAAC was designed with an asymmetric shape, so that its mass distribution would respond to the earth's gravitational field in such a manner that the desired attitude of the satellite would be maintained.

Geodetic Satellite (ANNA)—The Department of Defense joint Army-Navy-Air Force geodetic program, managed by the Bureau of Naval Weapons, has scheduled the launching of ANNA 1B from the Atlantic Missile Range for November 1962. A malfunction in the second stage ignition system of a THOR-ABLE-STAR booster caused the failure to orbit ANNA 1A on May 10, 1962. Data from ANNA will demonstrate the feasibility of a geodetic satellite program and provide both

accurate location of datum points and a specification of the earth's gravitational field.

Space Surveillance System (SPASUR)—The Navy designed, built, and now operates the most extensive space surveillance system in existence. Each day this electronic fence makes hundreds of satellite observations. A large computer complex located at SPASUR Headquarters, Dahlgren, Va., calculates orbits of the satellites observed and forwards the information to the North American Air Defense Command and to Navy ships at sea. With this information, the exact location of a satellite can be determined.

Antisubmarine Warfare Programs

Aircraft Antisubmarine Weapon Systems—Aircraft continue to play a most important role in antisubmarine warfare, providing rapid surveillance of large ocean areas and an ever-increasing "kill" probability. The progress made in the development of new antisubmarine aircraft will greatly enhance our ASW capability in the years ahead.

The S-2D (formerly S2F-3) Tracker search aircraft was delivered to the fleet in substantial numbers. This twin-engine, reciprocating, carrier-based, fixed-wing aircraft, an improved version of the S-2A (formerly S2F-1), is providing greater range and improved detection capability. The S-2E (formerly S2F-3S), with improved tactical navigation equipment, will be delivered next fiscal year.

Surface Ship Antisubmarine Systems—There were several important accomplishments in the development of new antisubmarine weapons for surface ships, providing the capability to seek out and destroy modern high-speed submarines at greater distances. Deliveries of ASROC systems continued to meet established schedules for ships in the FRAM program. New fire control systems and torpedo tubes were installed in FRAM program destroyers to enable them to launch the latest antisubmarine torpedoes.

Submarine Antisubmarine Systems—Work progressed on torpedoes and weapon systems to provide submarines with improved "kill" capability matched to their progress in detection.

Fiscal procurement of the Mark 55 aircraft-laid bottom mine was begun and will provide the fleet with an effective antisubmarine mine. Production was initiated to provide a stockpile of the Mark 57 submarine-launched antisubmarine moored mine, and initial operational evaluation started.

Strike Warfare Programs

This year saw important advances in strike warfare programs. New high-performance attack aircraft and missiles will greatly strengthen the naval striking forces.

All-Weather Attack Systems—Carrier-based heavy attack aircraft provide a highly mobile massive strike weapon. The A-5A (formerly A3J-1), the Navy's first supersonic, carrier-based, all-weather, heavy attack plane has higher speed and altitude capability and will contribute materially to increased strike capability. An all-out effort has been made to make this aircraft available to the fleet sooner. Training and support requirements were accomplished on an accelerated basis in order to meet the advanced deployment schedule of U.S.S. *Enterprise*. This aircraft holds the world altitude record of 91,450.8 feet for a jet carrying a payload of 1,000 kilograms, set December 13, 1960, and indicative of the high performance which it will bring to the fleet.

The versatile A-6A (formerly A2F-1) Intruder, the first aircraft capable of tactical air support missions under all-weather conditions, continued in development and flight status. Acceptable progress was accomplished, and fleet introduction is scheduled for next fiscal year. Development of a tactical electronic countermeasures (ECM) version of the A-6A was started. It has been designated the EA-6A (formerly A2F-1H) and is scheduled for the fleet during fiscal year 1964.

Assault Aircraft—A program of assault transport helicopters was initiated for the Marine Corps, with deliveries scheduled for fiscal year 1964. Designated CH-46A (formerly HRB-1), one medium model is a version of the Vertol commercial model 107 and is the replacement for the UH-34D (formerly HUS-1) helicopter.

A light assault helicopter in the program is the UH-1E (formerly HU-1E) (Army UH-1B, formerly HU-1B model), four test models of which will be procured through the Air Force early in fiscal year 1963. This helicopter provides combat zone observations and reconnaissance, wire laying, command liaison, and light resupply of front lines. It can be converted for casualty evacuation.

Attack Aircraft Weapons—A significant advance in BULLPUP missile readiness was achieved. Newly learned training techniques will contribute greatly to skill in delivery of the missile, and the inventory more than doubled during the year.

A new contractor qualified as a second source for BULLPUP guidance and control units, and all major components of the missile are now procured from multiple sources. This procurement policy has resulted in lower missile costs. The NATO consortium for the production of BULLPUP is making good progress. The Navy has provided technical support.

The development and evaluation of SHRIKE, a small and inexpensive air-to-surface missile, has proceeded well. Several flight tests have been conducted at various ranges, and multiple target capability

was demonstrated in recent firings. Procurement of pilot production missiles for evaluation and fleet use is planned for fiscal year 1963. Fleet introduction, following evaluation, is planned for the following year.

Strike Missile Systems—A program to modernize the Navy's stock of REGULUS I missiles was completed. Its new guidance system provides a submarine weapon with significantly improved protection against enemy jamming. Operational use of this new system began early in the year.

Antiair Warfare Programs

Naval antiair weapons are a significant factor in the over-all defense against air attack. They embrace three types of weapon systems—supersonic high-altitude interceptor aircraft equipped with air-to-air missiles, electronic-equipped early warning and intercept control aircraft, and ship-launched surface-to-air missiles. Several major advances have been made in these systems.

Fighter Aircraft—The Navy's F-4B Phantom II all-weather fighter plane continued to add to its record-breaking achievements. It established three world class records: (1) Record speed at restricted altitude of 902.769 miles per hour in August 1961; (2) a world speed record averaging 1603.3 miles per hour over a specified course at Edwards Air Force Base, Calif., in November 1961; and (3) a world record for horizontal flight at a sustained altitude of 64,433.8 feet in December 1961. In addition, eight world "time-to-climb" records were accomplished during the period February–April 1962.

These new records further proved the Phantom's outstanding capabilities. It carries SIDEWINDER and SPARROW air-to-air missiles and will go into fleet use with the first squadrons scheduled to deploy in the near future.

The F-8 Crusader series of supersonic fighter aircraft made good progress. Fleet deliveries of the F-8E (formerly F8U-2NE) commenced. This model has greater all-weather capability than its predecessor, the F-8D (formerly F8U-2N), and incorporates a redesigned nose section to accept a larger radar antenna. The changes have resulted in a substantial increase in the range at which enemy aircraft can be detected and attacked.

Development of the supersonic F-111 (formerly TFX) aircraft for joint Navy and Air Force use commenced this year. It will have a single basic design with minor differences to satisfy special Navy and Air Force requirements. The Air Force will be responsible for development and procurement. The Navy version will be armed with a long-range air-to-air missile system, to be developed by the Navy.

It is expected that contracts will be let for the aircraft and missile system next fiscal year.

Early Warning Aircraft—Development of the E-2A (formerly W2F-1) Hawkeye, the Navy's newest carrier-based early-warning aircraft, progressed on schedule. It is the first aircraft to carry the Airborne Tactical Data System, and will reach the fleet in fiscal year 1964. Its revolutionary design will greatly extend capability in early-warning and effective operation of attack forces. Equipped with automatic avionics, it will provide the task force commander with a more current presentation of the tactical situation. Approximately half of the flight test program has been completed.

Aircraft Weapons—Air-to-ground and air-to-air missiles continue to improve. The major technical problems involved in development of the higher performance 1C version of SIDEWINDER were resolved, and fleet delivery is now scheduled for the fiscal year 1964. Meanwhile, procurement of the production-proven SIDEWINDER 1A was increased to meet fleet requirements.

Development of the advanced SPARROW III is nearing successful completion and production is to commence next year. This new missile will be the prime armament for the F-4B aircraft, and can also be carried by the F-3B (formerly F3H-2) Demon fighter.

Surface Missiles—The fleet's surface-to-air weapons have made progress. The number of TERRIER-equipped ships rose to 19 with completion of the attack carrier *Constellation*, the TALOS/TERRIER missile cruiser *Long Beach*, and two guided missile frigates. Improved versions of the TERRIER missiles are in full production.

The latest version of the TALOS missile went to sea for the first time in U.S.S. *Long Beach*. Six guided missile destroyers, equipped with TARTAR, completed construction and joined the fleet. The earlier TARTAR ships will be equipped with the improved missile system during the next fiscal year.

Aerial Targets—The Q-2C Firebee target became fully operational in Utility Squadrons 3 and 8 at the Naval Missile Center, Point Mugu, Calif. This target can operate at medium altitude and high subsonic speeds. Testing of the Navy-Air Force KD2B-1 expendable-type target has proceeded satisfactorily. When it enters service use in 1963, it will be the highest performing target available to the fleet for realistic underway training with antiair missiles.

Weapon Support Programs

Accomplishments in the improvement of weapon systems support are numerous and technical. Several are mentioned in the way of illustration.

Utility Helicopter—The UH-2A (formerly HU2K-1) Seasprite is Navy's newest utility helicopter. With fleet delivery scheduled for December 1962, this helicopter will provide improvements in speed, range, navigation, and hovering. It will replace several utility helicopters now in service, thereby simplifying logistic support requirements.

Jet Radar Trainer—Aircraft procurement this year included the T-39D (formerly T3J-1) Sabreliner, a twin-engined jet radar trainer. It is equipped with the latest radar, and is used to train pilots and radar intelligence officers in advanced techniques of radar operation, scope interpretation, and aircraft intercept. It will become operational next fiscal year.

Photographic Transmission System—Considerable progress was made on the aerial reconnaissance photographic transmission system. This equipment will provide fast intelligence of behind-the-lines activity by radio transmission of photographs obtained by reconnaissance aircraft. During the year a prototype system was successfully demonstrated, and it is now planned to militarize this prototype to provide a system that can be evaluated by the operating forces.

Aviation Fueling Equipment—The Navy developed and is presently procuring improved aviation jet fuel filter/separators and gages for installation at stations utilizing high-speed apron refueling complexes. The filter/separators represent the latest "state-of-the-art" in fuel decontamination.

Mobile Aerial Target Control Centrals—The first of eight new type Mobile Aerial Target Control Centrals has been provisionally accepted. It is designed around a complex of mobile vans containing surveillance and tracking radars, computers, automatic plotting displays, communications, and control equipment. These units will control rotary-wing (DASH) and all current and projected fixed-wing targets in the Navy inventory. Another type of target control system is being delivered to shipyards for installation aboard destroyers to provide shipboard control of the DASH rotary-wing vehicles.

Tactical Air Navigation System (TACAN)—Worldwide, 92 Tactical Air Navigations Systems were operating at Navy-Marine Corps shore bases during this period. Of this total, some 22 are utilized for highly specialized applications such as Project DEEPFREEZE, Marine Air Traffic Control Units, and advanced base ships. Procurement of a lightweight dual TACAN has been initiated in conjunction with the Air Force. This equipment represents a marked advance in electronic packaging from the standpoint of efficiency and portability. Assignment of this equipment to special tactical units will improve unit operational capability and mobility.

Conventional Ammunition—An aggressive ammunition program was started to improve conventional attack capability, and embraced the backfitting of existing ordnance and the development of new conventional weapons with increased effectiveness. Excellent progress has been made in Rockeye I, an antitank cluster weapon; Snakeye I, a retarded bomb; and Sadeye, a large area antipersonnel weapon. These are scheduled for fleet introduction during 1963. Gladeye, a universal weapon dispenser, and Weteye, a chemical bomb, are scheduled a year later.

The aircraft chemical tank Mark 12, Mod. O, initiated a unique concept for establishment of a smoke screen. This new design will satisfy an urgent need of amphibious forces for a quick-forming vertical smoke curtain delivered from high-speed aircraft.

Research and development have been completed on a new fuze for 5 in./38 cal. gun projectiles, with significant improvement over present fuzes.

Corrective devices for overcoming hazards due to electromagnetic radiation on electric-primed ammunition, electric fuzes, and rocket launchers have been designed and released for procurement.

VII. Medical and Dental Services

Health of the Naval Service

The operating effectiveness and readiness of Navy and Marine Corps personnel have been promoted by emphasizing public health and preventive medicine measures. The incidence of disease and injury has continued at a low level. The noneffective rate fell from 10.9 to 10.4 per 1,000 average strength. Respiratory disease as usual was the most frequent ailment, especially among recruits where it seriously hampers the training cycle. There was no general epidemic of any disease, but small scattered outbreaks of malaria, influenza, hepatitis, cholera, scrub typhus, gastroenteritis, poliomyelitis, and bronchopneumonia occurred at home, abroad, and aboard ship. For the most part these were quickly brought under control. The over-all venereal disease rates dropped by 20 percent, including decreases of 32 percent in the Mediterranean area and 15 percent in the Far East.

Preventive medicine practices kept to a minimum the man-hours lost from admissions to the sick list. The administration of influenza vaccine to recruits at the U.S. Naval Training Center, Great Lakes, Ill., has reduced the incidence of that disease, under epidemic conditions, by 70 percent since the program began. Where a bivalent adenovirus vaccine has been available, acute respiratory disease illness has been reduced by 60 percent. Inactivated poliomyelitis vaccine of the Salk type has been found to be 60-80 percent effective, reducing the annual incidence of paralytic poliomyelitis from 50-150 cases about 5 years ago to 20 cases today.

Somewhat under 12,000 patients occupied beds in worldwide Navy medical facilities each day during the year. Of every 100 patients in naval hospitals ashore, 65 were active duty Navy and Marine Corps personnel. An additional 20 were dependents of the uniformed Services, while the remainder were Army and Air Force members, retired personnel, Veterans Administration beneficiaries, and supernumeraries treated for humanitarian reasons. Owing to the fact that servicemen have married younger and have more children than formerly, the number of dependents eligible for care in military or civilian facilities has steadily increased.

Hospitals and Dental Facilities

To provide medical support for the operating forces there were 25 naval hospitals, 31 station hospitals, 3 U.S. naval dispensaries, 62 dispensaries with authorized beds, and 107 dispensaries without authorized beds in operation. Of all the facilities, 182 were in the continental United States and 46 were extra-continental, the bed capacities being 12,774 and 1,121 respectively, a total of 13,895 beds. On ships afloat, the 976 medical facilities varied in scope from complete surgical capability on some carriers to a hospital corpsman on independent duty. In addition, 250 beds were utilized in the U.S.S. *Haven* (AH-12). There were 319 dental facilities, including 10 mobile dental units.

The effort to replace temporary World War II buildings with new, modern facilities continues. A new north wing for the Bethesda Naval Hospital is to be ready for occupancy in August 1962, and a new south wing is expected to be completed in December. An addition of 20 beds to the station hospital at Twenty-nine Palms, Calif., was begun in May, with completion expected in October 1963. A new 500-bed naval hospital was being planned for the Long Beach, Calif., area.

Dispensaries were under construction at Point Arguello, Calif.; Mayport, Fla.; Camp Courtney, Okinawa; and Charleston, S.C. A dispensary at Athens, Ga., was completed in February. New dental facilities began operating at Lemoore, Calif.; Roosevelt Roads, Puerto Rico; New London, Conn.; Camp Hansen, Okinawa; and on three ships. Work on others is in process.

Medical Readiness

Amphibious and Marine Corps Medical Support—The plan to augment a Marine division, in the event of deployment, with predesignated medical and surgical specialists was implemented expeditiously and successfully three times during the year. A similar plan is being developed for immediate augmentation when required of force troops, Marine aircraft units, and the amphibious forces.

Dental Service—The use of high-speed equipment was extended, more stations received a fluoridated water supply, and the number of procedures accomplished per dental officer increased. There continued to be an increase in such time-consuming procedures as root canal fillings, crowns, and bridges. About 20-25 percent of the dental care was completed in naval training centers and Marine Corps depots owing to the magnitude of dental treatment required by recruits.

Aviation Medicine—Extensive and progressive medical support was given to outer space flight and naval aviation through research, training, and the development of new equipment. Medical officers assisted Project MERCURY by providing valuable training to the astronauts, monitoring telemetric equipment around the world during the orbits, and by participating in medical aspects of the recovery operation.

The Mark V antiexposure suit, which provides cooling for the aviator while in the cockpit and insulation for him while in the water, was placed in operational use.

Plans were in progress to enlarge the human centrifuge at Johnsville, Pa., to make possible a more complicated, extensive, and realistic system of flight simulation. At the Philadelphia Air Crew Equipment Laboratory, development of a space flight chamber capable of simulating flight at up to 50 miles altitude was underway. This 9A12 model rapid decompression and altitude training device is intended primarily to be an advanced trainer for indoctrinating flight personnel in the environmental aspects of high flight.

Submarine Medicine—For the sixth successive year it was necessary to increase the number of specially trained medical officers in this field. Health problems encountered in the course of POLARIS submarine patrols were resolved successfully. A decision by the Atomic Energy Commission resulted in reducing the coverage of specially trained medical officers in nuclear submarines and also reduced the required length of training for hospital corpsmen serving in the program. Naval experiences in submarine medicine may contribute significantly to the civilian and military use of oxygen under high pressure to facilitate open heart surgery and to treat such diseases as carbon monoxide poisoning.

Special Weapons Medical Defense—This program was expanded to cover the medical aspects of microwave radiation (radar), and of magnetic amplification (MASER) and light amplification (LASER) by stimulation of electromagnetic radiation. Increased support was provided for medical defenses against ionizing radiation from nuclear weapons. Close liaison and technical assistance were furnished for the nuclear weapons tests in the Pacific Ocean and at the Nevada proving grounds.

At the National Naval Medical Center, Bethesda, Md., 100 Navy volunteers stayed in the new underground experimental shelter for 2 weeks in a monitored test under simulated radioactive fallout conditions. The biomedical reactor for the Armed Forces Radiobiology Research Institute was completed at the center and began producing power in June.

Medical Training

Training remained at about last year's level but advanced in certain specialized categories.

Medical Corps—A total of 381 medical officers was assigned to inservice residency training and 53 to civilian institutions. Compared with 487 in June 1959, there are now 527 Regular Navy medical officers on active duty who are American Board-certified in the various specialties. Fifty-four Naval Reserve medical officers on active duty are so certified. Eight residencies in radiology, ophthalmology, anesthesiology, and plastic surgery were newly established, modified, or shifted to another hospital to take better advantage of available teaching personnel and material. New affiliations were arranged with local universities and civilian hospitals to make available all or portions of the experience required in a given specialty for certification.

Eighty medical officers took courses from 2 days to a month in length pertaining to medical aspects of advanced warfare, space flight, missile operations, and nuclear weapons; orientation as to chemical, radiological, and biological weapons; management of mass casualties; and radioisotope techniques. Selected officers also took short postgraduate courses relating to clinical specialties and basic medical sciences.

Dental Corps—The training level of the last 6 years was maintained. In dental training were 18 interns, 28 in general postgraduate course, 9 in Navy residencies, plus 6 in civilian schools and 5 in miscellaneous full-time courses. Sixty officers are now certified in dental specialties. Short inservice courses were provided at the Naval Dental School and in the Fifth, Ninth, Eleventh, and Twelfth Naval Districts. The Naval Dental School at Bethesda, Md., became an off-campus center of the Georgetown University Graduate School. For the first time officers (20) began training in anesthesia to become qualified assistants to medical officers in emergencies. Finally, 153 attended training courses in casualty care, and 298 took short courses in civilian institutions.

Medical Service Corps—Seventy-eight officers were enrolled in full-time training programs—46 inservice and 32 in other facilities. The former covered hospital administration primarily, while the latter included sanitary science, virology, biophysics, and other sciences. In addition, 140 officers took part-time academic courses in civilian institutions under Navy sponsorship.

Nurse Corps—Courses outside the Service were attended by 204 officers. Of these, 2 completed work for the master's degree and 7 the baccalaureate, while 11 entered these programs for the first time. Others were taking short part-time courses, 108 of them during off-

duty hours. In the Nurse Corps Candidate Program (for nurses in senior year of nursing school) 31 completed, 24 continued, and 93 began the program. In the Nursing Education Program (for enlisted WAVES), 11 continued and 8 enrolled. Inservice disaster nursing institutes were attended by 299 active duty nurses; 143 newly appointed nurse officers attended an 8-week indoctrination course at the Naval Schools Command, Newport, R.I.

Hospital Corps—Graduates of basic hospital corps schools totaled 4,540, while 350 graduated from advanced schools and 2,432 completed technical courses. Of the latter, 1,309 were graduated from the Field Medical Service Schools at Camp Lejeune, N.C., and Camp Pendleton, Calif. There was a shortage of applicants for training in some specialties such as deep sea diving, submarine medicine technique, and neuropsychiatry technique. At the same time, over 350 applications for training outside the Navy were processed.

Schools for general dental technicians graduated 700 corpsmen, while 60 completed advanced schools and 107 finished prosthetic and repair courses.

Medical Research

A miniature self-contained walk-around rebreather device was developed. From it an air crewman can receive oxygen for 1 hour while temporarily leaving his duty station and primary source of oxygen.

In examination of firings of the RAPEC-III rocket ejection seat, the criterion of maximum 18 G force achieved at the rate of 250 G acceleration per second was established as the safe physiological limit which should not be exceeded under any high temperature condition.

Studies of human tolerance to high and low magnetic fields showed that there was no sensation during part or entire body exposure to nonchanging fields up to 20 kilogauss in a 15-minute period. Exposure to fields of 5 kilogauss for less than 3 days per year per man produced no aftereffects.

The Naval Medical Research Institute improved techniques and apparatus for production of localized hypothermia in the control of bleeding in open heart surgery. A recent discovery is that heparinized blood (which has an ant clotting factor) can be preserved without loss of the valuable heparin activity.

VIII. Supply

Increasingly complex weapon systems and changes in Defense-wide supply and financial methodology required corresponding adjustments of the Navy Supply System to provide timely and adequate support to the expanding nuclear fleet. Modern management techniques have been blended with technological advancements to insure continuity of effective fleet support. High-speed data communications, electronic computers, and advanced distribution and materials handling techniques are being linked together to achieve the goal of an automated supply system and optimum responsiveness in meeting the logistics requirements of the operating forces.

Automated Navy Supply System

A first step toward this goal, development of a uniform system of automatic data-processing at major stock points (supply centers and depots), is in progress. Its main features are: (1) Automatic on-line processing of request and receipt documents; (2) remote inquiry for fast responsive action to meet support requirements; (3) primary orientation around the physical issue and shipment of material, while facilitating accounting; (4) positive control of in-process transactions; and (5) ability to accommodate procedural changes simultaneously at activities by one centrally developed program revision.

This major project has reached the stage of actual programing. Specialized equipment has been selected, with the first operational installation scheduled in October 1962 at the Naval Supply Depot, Newport, R.I. When linked with oversea bases, selected ships, and the compatible data-processing systems at inventory control points, the system will afford increased speed, control over assets, responsiveness, and other features such as the uniform application of mathematical decision rules in all aspects of supply. This will manifestly improve the management of inventories and the support of selected weapon systems.

Another advance is in warehouse automation, with increased productivity, improved customer service, and reduced packing volume and costs among the more important benefits. Through extensive electronic controlled conveyor systems, issues are accumulated and re-

leased automatically for packing and delivery. Stock material from customer accumulation lines is then sorted automatically by category for the most advantageous freight classification rating. Advanced automated material handling systems are installed and operating in Naval Supply Centers at Bayonne, N.J., and Norfolk, Va. Additional installations are in process at the Naval Supply Center, Oakland, Calif., the Naval Supply Depot, Philadelphia, Pa., and the Naval Shipyard, Charleston, S.C. The Charleston installation will improve support of the POLARIS program.

Supply Operations Afloat

Modern data-processing equipment is being applied to supply functions on ships. The success of electric accounting machines aboard the U.S.S. *Proteus* (AS-19) paved the way for installation of similar equipment in the U.S.S. *Hunley* (AS-31). Commitments have been made for placing modern business machines in the U.S.S. *Holland* (AS-32), thereby equipping all fleet ballistic missile submarine tenders with up-to-date means for managing large and complex inventories. These tenders are being outfitted with rapid data transmission and receiving capabilities which will tie them directly to the continental United States support point and the Atlantic Fleet POLARIS Material Office. Requirements, usage, and demand data, as well as equipment failure information, are transmitted and received through these special logistic channels.

Similarly, resupply ships of the mobile logistic force have been furnished electric accounting machines to mechanize supply documents and actions. These installations have streamlined and compressed the underway replenishment process and reduced the personnel effort involved. Combatant ships now spend less time tied to their resupply ships.

All active fleet ships have been issued Coordinated Shipboard Allowance Lists (COSAL), which are improved mechanized allowance lists covering all requirements. Each is a combination index of installed equipments, technical reference, and item allowance list. An optimum COSAL has been developed for FBM submarines (SSBN) which considers the space-cube limitations and endurance requirements of the SSBN and reflects the relative (military worth) importance of an allowance item as it relates to the mission of the submarine. Both the optimum allowance list concept and military worth factor will be applied ultimately to all ships. Better material utilization, economy, and improved endurance of ships and submarines are the principal benefits. Attesting to their effectiveness, it is noteworthy that never has the patrol of an FBM submarine been suspended because of a supply deficiency.

Defense Supply Agency

The Department of the Navy has joined with the other military departments in contributing personnel, talent, and other resources in implementation and support of the recently established Defense Supply Agency (DSA). To assist in realization of the anticipated improvements in material management within the Department of Defense, the Navy and Marine Corps logistics organizations are adjusting their procedures to this new agency. They have participated in a number of projects designed to improve inter-Service supply operations for which DSA has been assigned responsibility. These projects include implementation of the new Defense Electronics Supply Center, the Defense Automotive Supply Center, the Defense Construction Supply Center, and the Department of Defense uniform requisitioning and issue priority systems.

Material Disposal

On January 1, 1962, the Defense Supply Agency assumed responsibility for administration and supervision of the surplus personal property disposal program. Incident thereto, the Department of the Navy transferred to the agency 10 Consolidated Surplus Sales Offices, all personnel associated with these offices, and all departmental personnel identified with the disposal function.

The Department of the Navy generated an estimated \$1.4 billion value of excess personal property this year and disposed of an estimated \$1.5 billion. These amounts are lower than previous years, due chiefly to past aggressive action to purify inventories and to reduce the number of obsolete noncombatant ships in the Reserve Fleet. This reduced our stocks of excess high value items and reduced the number of noncombatant ships in the Reserve Fleet to the point where relatively few ships will be processed for disposal unless major policy decisions should declare additional ships obsolete or excess to any possible future requirements. It is considered that the decline will continue as our inventories become further purified. Contributing to it will be the fact that substantial quantities of material heretofore carried in the Navy Stock Account have been or will be transferred to the Defense Stock Account, managed by DSA, and will no longer be reflected in Navy generations and dispositions of excess property.

Packaging

A program (Operation LIGHTPACK) to reduce expenditures for packaging without sacrificing required protection was aggressively promoted. Substantial savings are being generated, as evidenced by approximately \$1.5 million saved on a limited number of contracts.

Recently, the packaging charges of a major electronics company were negotiated downward from 9.5 percent to 5.6 percent of item cost. This action alone represents potential economies of approximately \$10 million to the Department of Defense over the next 2 years.

Supply Research

Several products of supply and logistics research typify the progress in this field. A new cargo breakout system utilizing palletized loads for underway replenishment has resulted in a record transfer rate. A new method of impregnating clothing in ships' laundries affords greater protection from chemical warfare agents. Additionally, new fabrics have been developed for work uniforms to increase wearability threefold and provide easy conversion to combat use for protection against atomic, biological, and chemical warfare. A reinforced transparent blister pack has been developed for delicate repair parts used in nuclear submarines to effect packaging and stowage economies.

A totally new food service concept, based on the latest advances in mass food preparation and handling methods, was developed for early implementation at the U.S. Naval Academy. In addition to improving materially the palatability of food served to more than 3,700 midshipmen, substantial savings will be realized through reductions in serving time, space, and the number of stewards and support personnel required in the mess hall operation.

New research on logistics planning, on alternative designs for the Navy logistics system, and on the failure and demand inputs to mathematical models has been added to the continuing research on multi-echelon inventory and distribution system models. Additionally, the basic rules as to economic order quantity and variable safety level are gradually being extended and standardized for provisioning and replenishment decisions, as are programs and instructions for obtaining and using military essentiality codes as a specific input to stocking decisions.

IX. Shore Facilities

Construction

To support the progress of the modern Navy and Marine Corps, extensive research, training, drydocking, missile, and communication facilities were built or under construction during the year. A total of \$340 million in new facilities was completed, and new projects amounting to \$145 million were started.

Matching the changing character of the fleet, drydocking facilities are being modernized to take the new and remodeled ships. A new dry dock (the world's largest in volume) was completed at Bremerton, Wash., and another was started at Charleston, S.C. An existing dock at Portsmouth, N.H., is being enlarged.

Major rehabilitation work on Bancroft Hall, Naval Academy, is proceeding. A number of other training facility projects are underway, including facilities at the Fleet Ballistic Missile Submarine Training Center, Fleet Antiair Warfare Training Center, Naval Training Center, Fleet Antisubmarine Warfare Tactical School, Postgraduate School, and the Armed Forces Staff College.

In communications facilities a high-powered very low frequency transmitter (VLF PAC) is being designed for a western Australia location. Estimated to cost \$70 million, it is comparable to the one at Cutler, Maine. Construction of several radio direction-finder facilities is in progress.

POLARIS facilities were expanded at Charleston, S.C., and at the Atlantic Missile Range.

Design and construction assistance was given to other agencies for facilities in the United States and at various foreign locations. Completed were: (1) The Armed Forces Radiobiology Research Institute at the National Naval Medical Center for the Defense Atomic Support Agency; (2) navigational facilities for the Coast Guard in Spain and a similar facility for NATO in Iceland; (3) headquarters for the Defense Communications Agency at Arlington, Va., and a regional facility in Hawaii; (4) missile launch facilities at Point Arguello, Calif., for NASA and a large program of emergent construction in southeast Asia for the Military Assistance Program.

Facilities Management

Value, at replacement cost, of the naval shore establishment rose from \$21.0 billion to \$21.4 billion in fiscal year 1962. Maintenance and operation expenditures increased from \$458.8 million to \$478.1 million or from 2.18 percent to 2.23 percent in relation to plant value. The backlog of essential maintenance remained approximately constant at about \$177 million, while the cost of performing maintenance increased by 1.7 percent according to the national cost index.

Public works functions being performed at two or more contiguous naval activities are being consolidated under a single activity at the Naval Air Stations at Quonset Point, R.I.; Pensacola, Fla.; Memphis, Tenn.; Corpus Christi, Tex.; Rodman, Panama, C.Z.; and at the Naval Shipyard, Mare Island, Calif. Other similar consolidations are planned. Consolidation studies at 18 more installations are being reviewed and will be effected where results show a more economical operation through better utilization of personnel, equipment, and shop facilities. Previous consolidations of functions at six facility complexes into Public Works Centers have resulted in improved services while effecting savings of over \$8 million through reduction of 1,200 employees.

Disposal of facilities originally costing \$343,013,444, including 30,942 acres of real property, was accomplished while acquisition of facilities, including 1,804 acres, amounted to \$948,217. Properties outleased brought an income of \$5,922,816. Three Wherry Act housing projects (1,212 housing units) were acquired.

The Department of the Navy has incorporated the President's policies on natural resources into its management program and received a commendation from the Secretary of the Interior for its stewardship of these resources.

Housing

The Capehart housing legislation will expire on October 1, 1962. Units authorized for the Navy during this program totaled 20,980, of which 18,596 were approved for construction. The fiscal year 1962 program includes 950 units. All other projects have been completed or are under contract. Total Capehart housing mortgages at the beginning of this fiscal year amounted to \$145,598,691; at year's end the total had reached \$226,520,303.

In view of the expiration of the Capehart legislation, appropriated funds were authorized for 1,000 additional housing units in the fiscal year 1962. Six hundred are now under construction.

Under the Wherry Act provisions, 17,096 units have been acquired. They will be converted into approximately 15,077 adequate quarters.

Sponsors' equities on the purchased units totaled \$16,861,052. Wherry Act mortgages amounted to \$107,904,490 as the fiscal year began, and \$109,383,543 at the end of the year.

Average unit cost of maintenance and operation of family housing was reduced 4 percent during fiscal year 1962. The backlog of essential maintenance has been reduced about \$3 million. The pilot program for comprehensive maintenance of family housing by private contractors, initiated last year, has been expanded and now includes San Diego, China Lake, and Lemoore, Calif.; Beaufort and Charleston, S.C.; Meridian, Miss.; and New London, Conn. These are combination lump sum and unit price contracts. Comparative costs of maintenance by contract and by station forces are being assembled for evaluation.

Naval Construction Forces

Programs have been undertaken for the Naval Construction Forces which should bring steady improvement in personnel and equipment, together with specialized training and employment more pertinent to the operational, contingency, and wartime missions and assignments of the famed Seabees. During this year, the Forces comprised two fleet staffs, 10 mobile and 2 amphibious construction battalions plus detachments thereof, with total strength of almost 6,000 officers and men. These units deployed to more than 20 worldwide locations. They assembled the first nuclear powerplant in Antarctica; the floating drydock at Holy Loch, Scotland; and accomplished other special assignments in southeast Asia, Ecuador, Chile, and Haiti, where they trained native personnel and built or repaired needed facilities.

Reserve Construction Force units numbered 225 divisions, organized into 18 mobile construction battalions. Nine of these received extensive organizational and military training. As the year ended, about 70 men in two divisions were at work in American Samoa assisting in the preparation of facilities for the conference of delegates from the Pacific territories in July 1962.

Action was taken to increase the combat readiness and capabilities of key fleet Construction Force units. Located in Okinawa, Spain, and Cuba, these units were maintained at the highest possible state of readiness to provide construction support to fleet units for contingency operations. Their effectiveness was evidenced by recent support to the Marines when both Seabees and Marines were deployed under emergency conditions to Thailand.

Naval Construction Forces, under the leadership of the Bureau of Yards and Docks, collaborated with the U.S. Army Corps of Engi-

neers in accomplishing the President's national fallout shelter survey. This \$56 million survey provided an inventory of actual and potential fallout shelter space in military reservations and in civilian communities.

X. Naval Research

The equipment and power of the fleet of the future is being shaped by the many contributions to general and applied knowledge derived from Navy-supported research. In accordance with general direction by the Department of Defense, the Department of the Navy continues to maintain a vigorous, well integrated inhouse program of research at its laboratories and field stations across the country. These efforts are complemented by planned contract research programs with universities, nonprofit institutions, and private industry. From such programs come significant contributions to United States science and technology.

Chemical Sciences

Our program in chemical sciences is concerned with understanding and applying chemical reactions in the development of more reliable and powerful missile propellants and warheads, new and more efficient means of propulsion using chemical fuels, and new materials able to withstand the environmental extremes regularly encountered by naval systems, varying from vacuums of space to the depths of the ocean. Part of the program is devoted to basic research to establish a foundation on which chemical developments may be planned.

Recent results representative of the program include advances in the synthesis of inorganic polymers which are precursors to nonmetallic materials for high temperature applications; new methods for making high-energy compounds containing fluorine; contributions to formulations of propellants for use in the advanced POLARIS missiles; and explosives stable at higher temperatures than heretofore possible.

Physical Sciences

This program provides the necessary advancement in the understanding of basic atomic and molecular structure and the natural laws which govern them. New operational capabilities will depend upon achieving, understanding, and, especially, exploiting such advances.

The evolution of quantum electronics which has recently produced the optical MASER has raised man's control of light to an entirely new level. The Navy program has contributed to this evolution and is

currently surveying actively the limits of applicability of this new measure of control. These limits are sure to be broad, for successful uses have already covered a wide range of activities such as welding, surgery, and optical reflection from the surface of the moon. Other uses will certainly include optical radar and, of course, communications as well as providing new tools for basic research of great fundamental importance.

Capitalizing upon a unique capability, there was incorporated into a TRANSIT test shot a small satellite, INJUN I, designed to investigate the auroral effects of the trapped radiation belts. Valuable information is still being received and analyzed, and an INJUN II experiment is being planned. From this and other cosmic ray research, much is being learned about the basic mechanisms of the interactions of particle streams with the ionosphere which give rise to the frequent "blackouts" of shortwave radio communications.

Mathematical Sciences

Support of the mathematical sciences covers the entire range of mathematics but places special emphasis on applied mathematics, numerical analysis, mathematical statistics, logistics, and information systems (including computers). Mathematical methods and techniques are being explored for the technical requirements of modern naval warfare in such fields as systems evaluation and engineering, mechanics, and physics. Research into the concepts and procedures of numerical analysis endeavors to take full advantage of electronics computing equipment. Knowledge of the foundations and methodology of scientific inference and operational planning—such as quality and reliability prediction, operations scheduling procedures, and inventory control are being extended.

Another part of the program inquires into theories and techniques of information processing and is directed to the design of information processing systems and devices of greatly increased speed, capacity, and flexibility, adaptable to Navy needs.

One recent accomplishment is the establishment of a strong research center in nonlinear mathematics, a field which is important in computers, communications, and more general control systems and which has been the object of intensive Soviet research in recent years. Of more particular Navy relevance is the development of an automated procedure for evaluation of the capability of mixed air and sealift logistics models and the development of load list decision techniques which maximize the logistics capability of the POLARIS weapon system. Preliminary test runs of the relatively low cost Illiac II computer demonstrated very high speed capability. In the area

A research program aimed at determining sources of confusion in sonar interpretation is now paying off in increased capability in the detection of underwater targets. It is also providing data for deliberate deception. Techniques for maintaining the vigilance of sonar operators are also being developed.

The aviation training program is profiting from a new cumulative predictor method, providing a current picture of a trainee's probability of success in the program. A more sensitive measure of candidate adequacy and program difficulty will result. Teaching machines are now being analyzed for more effective application in the Navy's many training courses.

Studies are aimed at improving reliability in psychiatric screening and crew composition in anticipation of smaller crews with longer service histories, especially appropriate in such activities as Operation DEEP FREEZE in the Antarctic and in the manning of POLARIS missile submarines. Such programs draw on increased knowledge in leadership training and selection as well as group morale and productivity. The Human Engineering Guide, a tri-Service project, will soon be available and will provide the basis for a NATO effort of a similar nature.

Materials Sciences

The technology involved in the design and manufacture of vehicles and equipment has been responding with exceptional vigor to the general expansion of science in recent years. As a consequence, performance demands on materials are rapidly exhausting material capabilities, thus delaying the translation of new designs into hardware. Materials research and development is conducted at a constantly increasing pace in order to provide materials for the evolving naval weaponry and equipment.

Efforts to improve the properties of materials, as advanced designs require, are largely governed by environmental influences such as aerodynamic heating, high G forces, low atmospheric pressure, exposure to corrosive chemicals, and high hydrostatic pressure. Research is underway to make available, in quantity, materials with properties to satisfy the most exacting demands.

Steel of sufficiently high strength in the section thickness required, which can be welded and later submitted to shock, vibration, and alternating stresses without cracking, is not now available and must be developed in order to permit construction of deeper diving submarines. Work is being sponsored in the improvement of reinforced plastic for structural purposes. Such material has the potential of significant

weight reduction in missile motor cases, submarine hulls, and the like. Additional work is needed to improve the bond between the plastic and the reinforcement, in addition to improving each of these components.

Increasing attention is being given to scientific work in the field of ceramics. These materials possess good stability at high temperatures, but have not been sufficiently ductile or shock resistant to be useful in a broad range of applications.

Electronic Sciences

Modern naval operations have required an ever-increasing use of electronic devices, systems, and techniques in weapon evolution. Communications, navigation, fire-control, guided missile, air-defense, countermeasures, and other systems all depend, for capable performance, on knowledge derived from exploratory research in the electronic sciences.

Our program in microelectronics and associated techniques is extensive. Based on better understanding of the physics of the solid state, such techniques hold promise of revolutionary changes in the physical aspects of electronic circuits—increased reliability and greatly reduced size and weight, for instance. Examples include the vacuum or chemical deposition of thin films, modification of properties of semiconductors by alloying and diffusion, and growth of semiconductor materials from the vapor phase.

Research in radio astronomy has been advanced by the dedication of a new radio observatory at Hat Creek, Calif., operated by the University of California at Berkeley. Two parabolic dishes are provided, one 33 feet in diameter, the other 85 feet. They are equatorially mounted and completely steerable. Their surfaces are exceptionally accurate and should be useable to 10,000 megacycles or somewhat higher. The research program for these antennas will be concerned with hydrogen gas clouds of the galaxy and how new stars might form from these clouds.

A more coordinated and concentrated attack upon the problems of the small fluctuations of the earth's magnetic field (micropulsations) has been made. Techniques and times of observation have been correlated by researchers across the country so that simultaneous measurement at widely separated stations are being made. An example of this unified effort was the discovery of a close correlation in VLF and ELF electromagnetic phenomena at high latitude conjugate points. Low correlations were observed for stations close together but not conjugate in respect to the earth's magnetic field.

Engineering Mechanics

Investigations in hydrodynamics, aerodynamics, and structural mechanics are proceeding. These efforts are designed to provide both basic knowledge and engineering design information needed for improvement in the hydrodynamic performance (speed, range, payload, motions, stability, control, and quietness) of naval vessels and weapon systems. Certain problem areas of high speed and high altitude flight (including reentry physics), which are of major consequence to offensive and defensive missile system technology as well as to manned and unmanned space flight, are under study. Also being considered are aerodynamic problems concerning such new aircraft concepts as ground effect and vertical takeoff and landing machines, and the attainment of structural adequacy in the design of modern high-performance naval weapon systems for operation in increasingly severe and complex service environments where the margins of superiority are dependent on the efficiency, reliability, and weight of the structure.

Some recent accomplishments of the program include research which was fundamental to the design of both the Navy's and the Maritime Administration's experimental hydrofoil craft. Significant advances have been made toward development of a technology by which efficient and reliable gas-lubricated bearings can be designed for applications ranging from deep-diving submarines to space vehicles. Reduction of hydrodynamic drag in torpedoes, a problem of great concern to the Navy, is under intensive investigation.

Some progress can be reported in the characterization of solid-propellant-type materials under realistic conditions of multiaxial stress. A significant portion of the research program is devoted to the evaluation of novel structural arrangements and composite materials for submarines operating at greater depths. Methods and techniques for the more accurate determination of fatigue characteristics of high-performance aircraft structures are under study.

Drag reduction in naval craft is a potential benefit from recent developments in the application of non-Newtonian fluids. The study of hydroelasticity may lead to knowledge which will avoid undesirable results in hydrofoils, rudders, and submarine control surfaces due to flutter and divergence. Research programs now underway may enable a substantial increase in the operating depth of future submarines and acoustic transducers, and may make possible the fabrication of solid-propellant rocket motor grains having greatly improved resistance to slumping and to cracking from temperature cycling or mechanical shock.

Energy Conversion

Almost anything the Navy uses requires a power source in which energy stored in a fuel is transformed into some form of useful work. Modern developments are increasing the demand for greatly improved and radically new systems for energy conversion, and research programs are endeavoring to satisfy it. These systems may concern propulsion power for vehicles of any type; unattended, remote powerplants for buoys, power stations, or lighthouses; auxiliary power for ships, submarines, or missiles; and others.

For various applications, the optimum characteristics being sought are low weight, simplicity, compactness, unattended reliability, high efficiency, silence, and high performance. Certain of these characteristics are more important than others, depending on the application. In submarines, for example, a silent power source is of paramount importance with compactness, simplicity, and reliability closely associated.

Our current research program in energy conversion is designed to achieve new and improved devices or systems which have these desired features. Part of it, such as the thermionics program, is designed to find more efficient ways of utilizing energy from a nuclear reactor for ship propulsion. Another part, on fuel cells, is designed to find more efficient means of using conventional fossil fuels. The goal of all is to discover means of substantially improving performance.

Radioisotope power supplies made their space debut in the TRANSIT satellite. Larger and more efficient radioisotope sources will be installed in later TRANSITs. A 300-watt thermoelectric conversion panel and electromagnetic heat fluid pump, using a nuclear reactor as a heat source, is under development; also, a 1500-watt solar dynamic system having a solar radiation collector and turbo-generator power converter.

Experimental silent thermoelectric refrigeration and air-conditioning plants for submarines have been built and are under test. Noise elimination, reduced maintenance, space and weight reductions, and freedom from hazards of freon leakage balance out the higher power requirements and costs of the vapor compression systems.

A 15-kw. fuel cell has been built, using sodium-mercury amalgam as fuel and oxygen as oxidant. Research on hydrogen-oxygen cells is continuing, and the construction of a 200-kw. prototype plant is being considered. The program on thermionic energy conversion has seen significant accomplishment during the past year in both theory and experiment. Developments in theory have led to a better understanding of thermionic converter operation.

A low temperature thermionic cell, producing 2.4 watts per square centimeter of electrode emitter surface, has been running successfully for over 3,000 hours with an efficiency of 10.5 percent. Although still a long way from being a practical piece of equipment, this laboratory test represents substantial improvement in the state-of-the-art. Only a year ago, performance such as this in the immediate future was considered quite unlikely.

XI. Civilian Personnel

On June 30, 1962, the Department of the Navy (third largest employer of civilian personnel in the Federal Government) employed 348,056 civilian workers in Washington, D.C., and at activities throughout the United States and overseas. Total employment had increased 1,746 during the year. A substantial number of civilian personnel are at oversea bases, where a heavy workload has caused an increase of 1,200.

Most of the Department's civilian workers are employed at industrial activities, the naval shipyards being the largest employers. It was among the ungraded (blue collar) workers, most of whom are at these industrial activities, that 89 percent of the year's increase took place.

Of the total work force, 39 percent occupied graded positions, while 61 percent were in ungraded occupations; 82 percent were males, 18 percent females. Civilian payroll expenditures for the fiscal year 1962 totaled \$2.2 billion.

CIVILIAN PERSONNEL—JUNE 30, 1962

	<i>Total</i>	<i>Geographical location</i>		
		<i>United States</i>	<i>Terri- tories and possessions</i>	<i>Foreign areas</i>
Graded..... ¹	136, 152	128, 034	1, 715	6, 403
Ungraded.....	211, 904	196, 701	3, 416	11, 787
	<hr/> 348, 056	<hr/> 324, 735	<hr/> 2 5, 131	<hr/> 3 18, 190

¹ Includes 30, 285 in scientific and engineering occupations.

² Includes 553 foreign nationals.

³ Includes 16, 014 foreign nationals.

Position Classification and Wage Administration

New or revised wage schedules were issued for 152 labor market areas in the 50 States and for 24 areas outside the United States. Position classification and wage administration programs in 180 field activities were reviewed and evaluated, some for the guidance of the Department alone, others additionally for the guidance of the Civil Service Commission. Many publications were issued for Depart-

ment personnel officials, including guides for training supervisors, for wage fixing and ungraded determinations, for implementation of the Civil Service Commission's Federal Personnel Statistics Program, and for classification of positions in particular occupations to insure Navy-wide equity.

Employment

Recruitment of high quality scientific and engineering personnel continued to be difficult. Although the number recruited is generally adequate, the quality is declining perceptibly. A primary cause is lack of comparability between salaries provided by the Federal Government and those offered by private industry. The Department has been at a distinct disadvantage in attracting college graduates of top scholastic rank because of this pay differential. It is hoped that prospective Federal salary reforms may alleviate this problem.

Inability to pay travel expenses for preemployment interviews (due to lack of legal authority) also appears to be a strong factor in some declinations of job offers. The Department is willing, on the basis of written reports of candidates' qualifications, to make job offers in some instances without face-to-face interviews; however, some candidates are not willing to accept such offers if they cannot first view the work site and working conditions without expense to themselves.

A number of actions have been taken to further the objectives of the Equal Employment Opportunity Program established by Executive Order 10925. These include issuance of regulations prohibiting discrimination on the basis of race, color, creed, or national origin in employee recreation and welfare associations; inclusion of predominantly Negro institutions in college recruiting campaigns conducted by naval activities; and reemphasis of the importance of avoiding discrimination in all aspects of personnel administration.

In keeping with the President's policy to maintain the career service free from any discrimination on the basis of sex, all naval activities were required to explain to the Civil Service Commission any restriction to one sex in requests for certification of eligibles to fill vacant positions. A review of policies and practices concerning employment, promotion, career development, and other areas of personnel administration was ordered to assure that the President's intent is explicit in policy statements and is followed in actual practice.

Employee-Management Relations

The Department of the Navy participated fully in the task force activity which preceded the issuance of Executive Order 10988 on Employee-Management Relations and in the subsequent implementation of the order. Considerable training was given staffs of naval

activities to insure that implementation, particularly of the provision for three forms of recognition of employee organizations (exclusive, formal, and informal), would proceed with minimum difficulty. In addition to publication of a general guide for training, seminars were held in five cities to cover all naval districts, and bureau and office teams held orientation sessions with both management and industrial relations personnel of activities under their management control.

To effect further the provisions of Executive Order 10939 and subsequent Presidential policies on standards of conduct, all employees were advised of the requirements of laws, rules, and regulations, including a conflict-of-interest standard. Naval activities have been directed to bring to the attention of all employees semiannually the information contained in the newly issued pamphlet on this subject.

A new procedure for effecting adverse actions and processing appeals from such actions was developed pursuant to Executive Orders 10987 and 10988 and Civil Service Commission regulations. It grants to nonveteran employees protective rights previously restricted to veteran preference employees in the competitive service; provides employees with an additional right of appeal to the Civil Service Commission after receipt of an agency decision on an appeal from adverse action; requires that employees be furnished a copy of the report of the Hearing Committee which conducts a hearing on the case; and requires that testimony in hearings on adverse actions be under oath. Concurrently, a new procedure for processing grievance appeals was also developed to streamline the handling of employee grievances.

A placement assistance program was established to enhance the attractiveness of oversea employment and to provide for more effective utilization of well qualified employees who have served overseas.

A pension and life insurance program was established for local national employees in the United Kingdom, and a system of fringe benefits was established for local national employees in Korea.

The Department received the Honor Award of the National Association of Suggestion Systems for an outstanding promotion program. The effectiveness of the Navy incentive awards program is demonstrated by the facts that 65,000 employees submitted suggestions or were recommended for awards; over 45 percent of their contributions merited cash awards totaling \$2.5 million; and first year benefits of their initiative are estimated at nearly \$39.0 million.

Progress was made in improving the quality of the civilian leadership program. There are definite indications that naval activities have a better understanding of program objectives and greater insight into ways and means of implementing them. Joint military-civilian leadership programs are being conducted at many activities

and are producing better mutual understanding of the roles played by military and civilian leaders.

Employee Training and Development

The 4-year training program to provide continuing input of skilled journeymen into the artisan trades has 5,722 apprentices in training (8 percent of the total journeyman workforce in the major trades). They are in 62 trades, at 45 naval activities. Nine hundred and five apprentices graduated to journeyman status during the year.

The program (typically 1 to 3 years) of combined training and work experience for employees with aptitude but little or no previous experience enabled 608 employees to systematically obtain the required knowledges and skills through employment in ungraded occupations (not in the apprentice program).

Work-study programs and cooperative education programs, requiring 4 to 5 years of combined work experience at a naval activity and undergraduate study at a college or university, provided 213 graduate scientists, engineers, and mathematicians for full-time employment at 43 naval activities. In addition, 1,088 student trainees, in 19 fields of specialization, were employed at year's end.

To develop a source of future management potential, the departmental service continued the recruitment and training of management interns. Forty management interns, selected from the Federal Entrance Examination registers, were trained in six bureaus and offices.

Twenty-five employees were awarded scholarships and fellowships at graduate and undergraduate levels by educational institutions, private foundations, and the Federal Government. Use of the authority to accept such scholarships and fellowships (Government Employees Training Act, enacted in 1958) has steadily increased. It is benefiting the Department as a positive recruitment and retention tool. It benefits also the employees who receive the awards because they gain outstanding recognition of their accomplishments and the opportunity to pursue a course of study or research in keeping with their career objectives.

Safety

The Department of the Navy has been recognized in a number of instances for the extent of its safety program. It received the National Safety Council's Award of Honor in the calendar year 1961 for the reduction of accidents to civilian and military personnel of the Shore Establishment. A Certificate of Achievement from the Auto Industries Highway Safety Committee commended the noteworthy performance in promoting voluntary motor vehicle safety checks in naval

activities and participating in community safety efforts. Its magazine, *Safety Review*, received the National Safety Council's Award of Merit in recognition of exceptional service in the promotion of safety.

The civilian disabling work injury frequency rate was reduced by 16 percent and the severity rate by 65 percent from the figures of fiscal year 1961, which was a disastrous year because of the catastrophic explosion and fire on the U.S.S. *Constellation*. When *Constellation* deaths and injuries are excluded, the frequency and severity rates for 1962 dropped by 4 percent and 26 percent, respectively.

XII. Business Management

The Navy Budget

During the fiscal year 1962, more than \$13.2 billion was required to maintain the Navy and the Marine Corps and perform their missions. This amounted to approximately 15 cents of every dollar expended by the Federal Government, and about 28 cents of every dollar expended for military purposes by the Department of Defense.

The broad purposes or functions for which these expenditures were made are set forth in the following table:

EXPENDITURES BY FUNCTIONAL TITLE

Fiscal Year 1962

(Millions of Dollars)

<i>Functional title</i>	<i>Amount</i>	<i>Percent</i>
Military Personnel.....	3, 417	25. 8
Operation and Maintenance.....	3, 053	23. 0
Major Procurement and Production.....	5, 234	39. 5
Research, Development, Test, and Evaluation.....	1, 299	9. 8
Military Construction.....	189	1. 4
Revolving and Management Funds.....	68	. 5
	<hr/> 13, 260	<hr/> 100. 0

Slightly less than half the total expenditures were devoted to immediate readiness, primarily for military personnel and operations and maintenance. The other half involved expenditures for research and development, major procurement, and military construction—that is, for future readiness. Expenditures from Revolving and Management Funds were mostly the result of Navy Stock Fund operations.

Military personnel costs were primarily for pay, allowances, subsistence, individual clothing, and individual transportation, and supported an average of about 656,000 officers and men of the Navy, and approximately 187,000 Marines. Expenditures of about \$106 million for Navy and Marine Corps Reserve components are also included under this heading.

Expenditures for Operation and Maintenance comprise costs of maintaining and operating the fleet, aircraft, and Marine Corps units,

as well as the shore establishment with its air stations, shipyards, ordnance plants, supply depots, and hospitals. These funds supported three Marine divisions and three Marine air wings, about 900 active fleet ships, and about 7,450 Navy and Marine Corps operating aircraft.

More funds were expended for major procurement than for any other purpose. These expenditures were for new aircraft, missiles, ships, combat vehicles, weapons, ammunition, electronics, and other procurement items of a long leadtime nature. Approximately 40 percent of procurement expenditures were for new aircraft (\$2.1 billion). Expenditures for shipbuilding amounted to approximately \$1.9 billion, while missile expenditures totaled \$639 million.

Research, development, test, and evaluation expenditures to a large extent emphasized the general areas of antisubmarine warfare, oceanography, electronics, and guided missiles, along with basic and supporting research.

The last item in the table, Revolving and Management Funds, is concerned with a number of funds such as the Navy Stock Fund, the Marine Corps Stock Fund, the Navy Industrial Fund, and the Navy Management Fund.

Status of Navy funds in the fiscal year 1962 was as follows:

EXPENDITURES AND BALANCES

Fiscal Year 1962

(Billions of Dollars)

Carryover of Unexpended Balances, July 1, 1961.....	11.1
Add: New Obligational Authority.....	14.8
<hr/>	
Total Funds Available for Expenditure.....	25.9
Less: Expenditures	13.3
Reverted to Treasury (net).....	.1
<hr/>	
Carryover of Unexpended Balances, July 1, 1962.....	12.5

During this year, a new perspective was introduced from which the Department of Defense budget could be examined. Under the direction of the Secretary of Defense, an integrated programing/financial management system was initiated shortly before the start of the year and served as the basis of the development of the fiscal year 1963 budget. Decision-making for the new budget was oriented to programs and their relation to over-all Department of Defense military missions, expressed in terms of identifiable program elements (primarily, major weapon systems). As a further aid to decision-making, programs were reviewed for 5 years into the future. The emphasis of management shifted to programs rather than appropriations, and the progress of programs is followed in both physical and related

financial terms. The Department of the Navy adjusted its organization and procedures to this new approach. A cost information system was developed to accommodate the complex data requirements of the integrated programing/financial management system, and the 1963 budget was expressed in both program and appropriation structures through use of this system.

Procurement and Contracting

Of the \$8,551 million obligated by the Department of the Navy for direct purchases during the past fiscal year, \$3,655 million or 43 percent was awarded on a competitive basis, compared with 42 percent in the previous year.

Cost reduction continued to be a key objective in procurement, through a series of actions designed to reverse the upward trend in procurement costs. The entire procurement process is under study, from initial determination of requirements to the purchase and delivery of material. Economies are sought in the contracting function through increased competition and improved purchasing techniques.

An important factor in the effort to increase competition is more advance planning in procurement. The degree of competition available at the time of purchase depends upon actions taken early in the planning stages. Procurement plans ranging from 2 to 5 years into the future are now required in major development production programs. A typical 5-year plan covers such elements as requirements, fund estimates, development plans, and similar information. The plans are then charted, and it is possible to establish points in time where competition may be introduced.

Another factor being promoted is improvement of the availability of specifications, drawings, and other technical data. This permits greater competition among suppliers other than the original developer. Actions to reduce technical data requirements and establishment of data review boards to assure adequate technical documentation are among other efforts in this direction.

Improved purchasing techniques have been emphasized. More advance publicity in procurement has been sought, and more effort placed on procurement training to improve the quality and effectiveness of procurement personnel. During the year, 2,290 persons were trained in Navy-sponsored Defense procurement courses, a substantial increase over last year.

Approximately 50 percent of Navy procurement funds flows through prime contractors to subcontractors and suppliers, and a comprehensive review of larger subcontracting plans and programs is being

made. One recent measure to increase competition in subcontracting was the development of an improved small business subcontracting program which must be adopted by most prime contractors receiving contracts in excess of \$500,000. This program also provides for greater effort to seek out qualified small business sources for items previously produced only by large concerns.

Progress has been made in awarding more contracts to small business. The goal of 17.1 percent was exceeded, a favorable comparison with the 15.5 percent for fiscal years 1960 and 1961. Research and development contracts amounting to \$85 million were placed with small business, 8.9 percent of the total R&D procurement from U.S. business. This is a significant improvement over last year's \$72 million (5.4 percent).

The Department is continuing to encourage contractors to conduct value engineering studies of items being procured and to submit proposals which will reduce costs without impairment of quality. Increased attention is being given to analyses of suppliers' pricing proposals and to more advantageous selection of types of contracts. On the latter point, it is encouraging to note greater use of firm fixed-price and incentive contracts. The value of letter contracts was held to a low level, and a substantial number of this type were converted to definitively priced contracts. Early conversion dates have been set for those still outstanding.

In reviewing and managing the year's procurement, 43 projects of a substantial dollar value were approved to provide facilities to private industrial firms and Government-owned industrial plants for accomplishment and acceleration of production items urgently required for military readiness. These facilities have been justified on the basis of strict military necessity, cost-savings, and being beyond industry capability to finance.

Screening of industrial reserves for machine tools and other production equipment has resulted in an estimated saving of \$3 million for items that otherwise would have been purchased. Continuing efforts have been made to reduce the number of contractor-operated plants in the Industrial Plant Reserve. Twenty-one such plants were removed from the reserve during the year. Eleven more were in process at year's end.

Printing and Publications

Printing produced or procured by the Navy Publications and Printing Service increased about \$2 million to a fiscal year 1962 total of \$33 million. Of this amount, about \$16 million was produced in the 30 Navy-managed printing plants located throughout the Naval

Establishment. About \$3.1 million represented commercial procurement in the field, and \$14 million from or through the Government Printing Office. In addition, an estimated \$30 million of printing was processed as a part of equipment or service contracts, primarily in the category of technical manuals. By regulations of the Congressional Joint Committee on Printing, this type of procurement is now required to follow printing procurement procedures and a phased transition has been arranged. Further, agreements have been negotiated with the Government Printing Office to establish commercial printing contracts at the point of origin to assure that technical manuals are available for concurrent delivery with the associated equipment.

Legal Services

The Department has required and received comprehensive legal counsel and services from its attorneys. Under the Judge Advocate General of the Navy, the principal areas of legal work are administrative law, civil law (including claims and legal assistance), litigation, investigations, certain areas of tax law, international law (including the law of the sea and air and space law), admiralty, and military justice. All areas have been active.

Statistically, court-martial cases of all types declined despite the increased forces in the latter part of the year. While the actual number of cases decreased, decisional law brought about as a result of their disposition indicates a growing requirement for the services of full-time practicing military lawyers.

The international law workload continues to increase. Status of Forces negotiations with the Republic of China continue and are about to resume with the Republic of Korea. Consideration of space telecommunications by the Congress has required military legal analysis. Extensive consideration has been devoted to the problem of jurisdiction over military aircraft in international airspace. The exploration of space requires continuing legal attention because rapidly changing developments render inadvisable the immediate definition of rights of nations in outer space.

Legal problems connected with the establishment of a NATO sea-borne force have been under study at the request of the Secretary of Defense. Jurisdictional and claims matters arising from the activities of U.S. naval forces in all parts of the world have received the timely attention of the Judge Advocate General, and solution of the problems resulting from these operations has enhanced the friendly relations between the Navy and foreign authorities concerned.

The General Counsel of the Department of the Navy is responsible for legal advice and services in the field of business and commercial

law. Legal services with respect to procurement of defense materiel continued at a high level of activity, being required to support a procurement program covering over 2 million procurement actions and aggregating over \$8 billion.

Efforts to obtain increased competition in procurement have been aided by active ready assistance of legal counsel. A number of offshore procurement contracts were placed on a government-to-government basis and presented unusual domestic and international legal problems.

The Office of the General Counsel participated in drafting Defense-wide regulations governing the procurement of public buildings, public works, and other improvements to real property. It also prepared a revised form of contract for ship repairs and alterations, a new short form of construction contract, and a number of other standard forms to simplify and facilitate contracting.

Legal services furnished in support of the disposition of excess facilities have been substantial. Government and private counsel have been assisted by Navy counsel in cases of taxes improperly assessed against Navy contractors, and required legal services have been furnished for the operations of MSTs, and fiscal, budgetary, and accounting matters.

Departmental Headquarters at Washington

The headquarters buildings housing the Department of the Navy's executives and their technical and administrative staffs have long been inadequate. Bureaus and offices are fragmented into 22 widely separated buildings. Excepting limited space in the Pentagon and the Navy Annex in Arlington (Federal Office Building No. 2), 60 percent of the headquarters personnel work in makeshift accommodations contrived from obsolete temporary structures, poorly arranged and equipped. Modern office space, consolidated for work efficiency, is badly needed, and it is hoped that Federal building programs at the seat of Government will soon provide relief.

In the interim, a comprehensive plan for housing the Navy Department and field activities now occupying departmental space has been developed as a temporary measure. This plan provides for retention of currently assigned space in the Pentagon and the Arlington Annex and concentration of the remainder of the Department at the Main Navy-Munitions Building complex. Thus, the Department would be concentrated at three locations as opposed to the present scattering in more than 20 buildings. A key provision of the plan is rehabilitation of the Main Navy and Munitions Buildings consistent with their expected life span.

Management Improvement

Purposeful efforts to improve management and over-all operations are continuing. An evaluation of the concepts and organizational alignment for all phases of the Navy's antisubmarine warfare program's research and development effort has been made, to perfect management concepts and organizational alignments. Management information systems are under review to provide accurate and timely information for top management's functioning and decision-making. Specific studies have been made of all safety and accident information and data flow, real property, petroleum distribution, research and development, and other specialized functional areas.

A program has been initiated to reduce contractor overhead costs by reduction of reporting and technical documentation. Use of the performance evaluation and review technique (PERT) is being extended into the cost and resources area, and the Department has participated in the publication of a PERT-Cost Guide for use by all Government agencies. Further development of a computerized line-of-balance technique is proceeding to improve the determination of manpower requirements of any type of weapon system. A pilot performance and cost evaluation (PACE) management control system is being installed as a means to increase the productivity of industrial-type activities. In the naval shipyards, a refined technique called critical path scheduling is being introduced to improve manpower utilization in ship work.

Modern methods in applied management are being introduced by the bureaus and offices wherever benefits are apparent. The Bureau of Supplies and Accounts, for example, accelerated its methods engineering program as a major means of achieving more effective management of its activities and resources. The program systematically promotes the development and use of better methods, engineered performance standards, and other aids to productivity and efficiency. It was installed in 11 major field activities of the bureau this year, bringing the total to 17.

Performance standards covering 80 percent of the work required in real property management have been established under the maintenance management program, and show a 25 percent increase in worker productivity in 99 major naval activities where the program is being used to save manpower and funds wherever possible.

Progress has been made in improving management information systems through the use of automatic data-processing equipment. Among many examples are the conversion of mine, missile, and related engineering drawings to the microfilm aperture card system; mechanized systems for integrated inventory management; and potential

use in budget documentation by means of the new program change control system concept.

Plans have been developed to install a standard management information system in naval shipyards, and a prototype standard system for naval air stations has been developed.

Standards are being developed to improve the interchange of information between automatic data-processing systems by using standard coded character sets and data formats. Introduction of automatic circuit switching capability by means of a switched circuit automatic network (SCAN) has significantly increased the ability of naval activities to exchange data by electrical transmission. A prototype production control system (shoploading) for the naval air stations is being designed using linear programming techniques.

Considerable progress was made in the development of a system to provide a common language link between data-processing equipment and the printing press in order to produce material in an economical format in accordance with standard printing practices. An important contribution to improved processing techniques was the development and installation of a specialized printing system to speed printing production of contractual and procurement documents, thus reducing expenditures of time and money for this operation by sizable proportions.

XIII. Conclusion

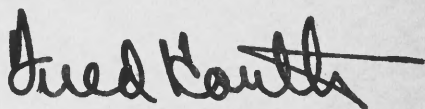
The Navy and the Marine Corps, like the other military Services, are continually faced with the problem of proper balance between the current effectiveness of forces and future readiness. It is increasingly important that forces-in-being be maintained at a high level, and that their responsiveness to the ever-changing situation be instantaneous and effective. They now provide powerful support to national policy, and careful planning will insure that they will be able to continue to meet their assigned tasks.

Modernization of the naval forces is continuous and, as funds and technology permit, is as rapid as possible. It is not a task which can be undertaken as a solitary program, quickly replacing all old ships, planes, and weapons with new. Every advantage must be taken of the vast technological gains of the past years, and those coming to the fore every day must be tested carefully for their worth. We must insure that new developments are utilized effectively by our planners and builders. With respect to shipbuilding, this indicates an orderly acceleration of construction until past deficiencies are overcome, followed by an orderly replacement program to make certain that block obsolescence does not recur. A balanced, systematic program will further enable us to see that full value is received for every dollar spent.

The retention of experienced officers and enlisted men, on whose training much time, effort, and money have been spent, to man our increasingly complex forces continues to be a major problem. Progress has been made in motivating personnel to a career in the naval service, and the situation has eased somewhat, but too many trained men are rejecting naval careers. The problem of getting enough motivated, dedicated, and skilled officers and men has yet to be solved.

Numerous other problems still require solution and are under study. Nuclear propulsion for surface ships, greater antisubmarine warfare attack and defense capabilities, better communications, and underway logistic support are among a number of areas which are receiving primary attention. Projected into the future, the improvement process will add substantially to the armed strength of the United States and make it a more flexible instrument of national policy. Great effort

will be required for years to come, as long as world tensions continue, and the Navy and the Marine Corps are prepared to put forth that effort.

A handwritten signature in dark ink, reading "Fred Korth". The signature is stylized with a large, bold "F" and a long, sweeping horizontal line extending from the end of the word "Korth".

FRED KORTH,
Secretary of the Navy.

Annual Report
of the
SECRETARY OF THE AIR FORCE

July 1, 1961, to June 30, 1962

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I. Introduction

More than two centuries ago, Voltaire wrote to his friend M. Bertin de Rocheret: "The man who ventures to write contemporary history must expect to be criticized both for everything he has said and everything he has not said."

The events which transpired during the fiscal year past are today a source of continuing discussion, and perhaps some difference of opinion, for the final judgment of history on those events has not yet been entered. It would be surprising, therefore, if this appraisal of those events were acceptable to everyone. This state of affairs is not entirely displeasing, for it has been said that when history ceases to be discussed, it ceases to be interesting.

We believe the accomplishments of the U.S. Air Force during fiscal year 1962 are both interesting and significant, for it was a year of tangible reward in every area of our activity, ranging from the combat forces to the reserve forces, from ballistic missiles to guerrilla operations.

The effort to develop, produce, and employ ballistic missiles in our defense arsenal became concrete reality during the past year. Fiscal year 1962 is a year of fulfillment because a sizable number of ATLAS and TITAN missiles entered the operational inventory, joining SAC's manned bombers to form the backbone of the free world's strategic strength. This mixed force of manned and unmanned systems assures us of continuing positive control in terms of strike, reconnaissance, evaluation, and restrike. The over-all capacity for strategic deterrence in the U.S. Air Force remains the bulwark of the nation's war-preventive policy.

The USAF tactical forces also achieved an important goal in directing their considerable strength to give increased emphasis to counter-insurgency and limited war forces. To give maximum usefulness to these forces, a new command, STRICOM, was established under the Joint Chiefs of Staff in full recognition of the air-ground nature of the limited war threat. STRICOM is a dramatic illustration of an organizational structure reshaped to employ the latest technology to the best advantage.

Moreover, STRICOM has become a testing ground for the customer-producer approach in developing teamwork for air-ground operations.

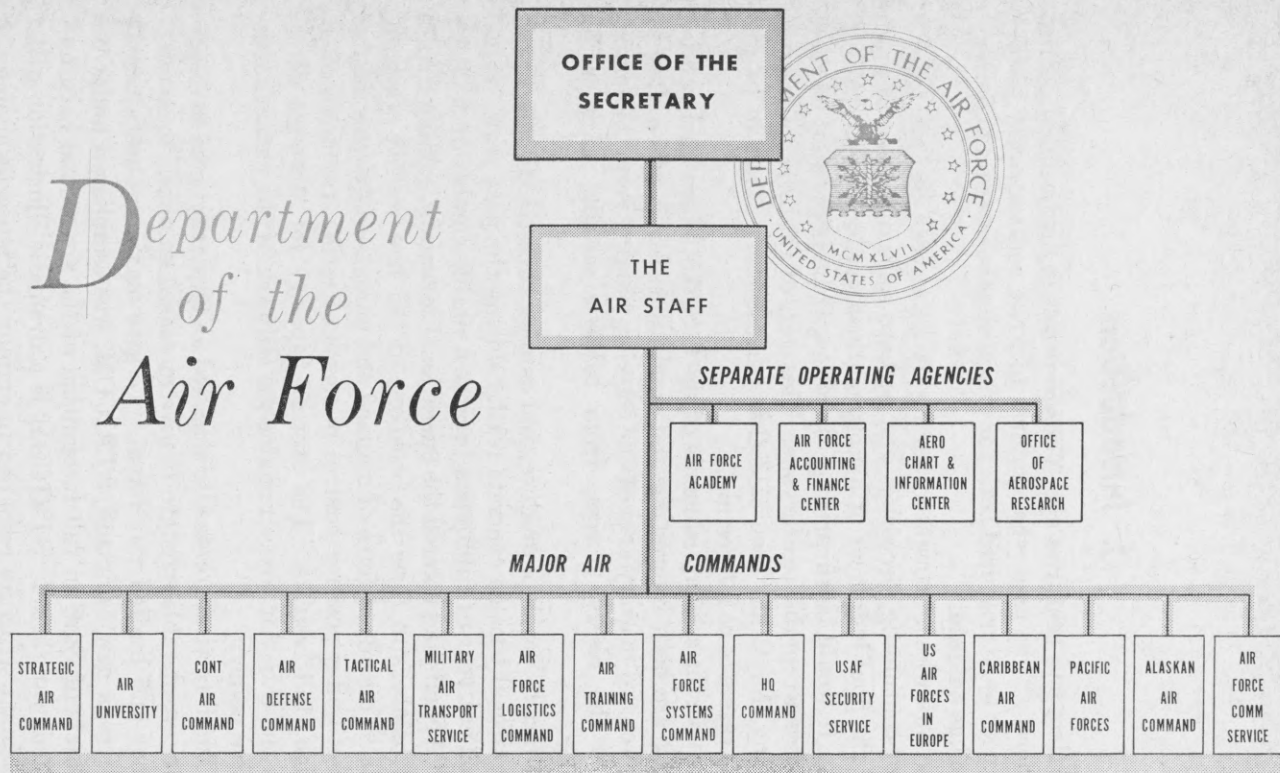


Figure 1.

1 JULY 1962

Both Air Force and Army units are participating in this joint effort, concentrating immense power for air superiority and interdiction, close ground support, and rapid air movement of ground forces.

Mobility is a primary requirement of the broadened deterrent. We have substantially improved our airlift capability, a fact impressively demonstrated when MATS delivered a STRICOM battle group non-stop from Fort Lewis, Wash., to Frankfurt, Germany, in just over 10 hours.

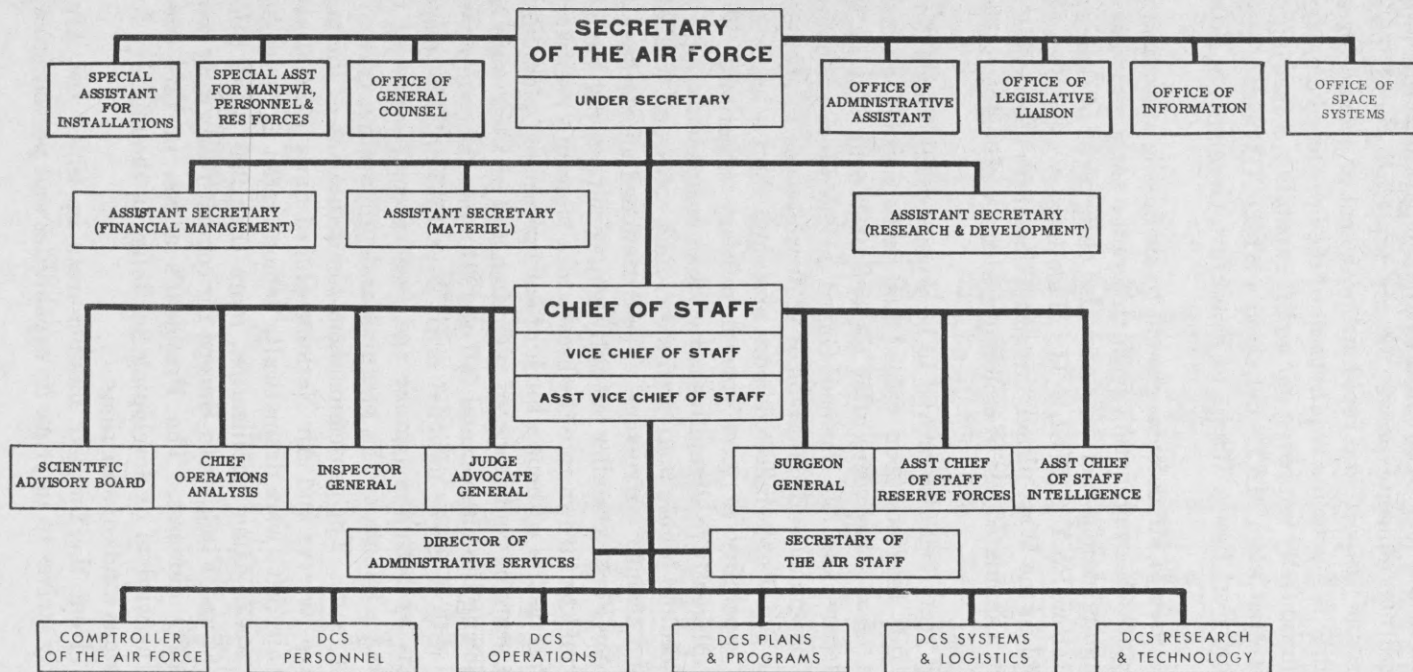
In the area of air defense, ground-to-air missile crews and manned interceptors, in combination with this radar early warning systems and communications facilities, provided clear proof of their readiness in Operation SKY SHIELD II. This largest air defense exercise ever held in the West pitted "invading" bombers against the defense forces in a simulated test of startling realism, with highly satisfactory results.

Fiscal year 1962 also proved to be a year of fulfillment for bringing to full readiness our valued and indispensable civilian components. For some years after the end of World War II, our Air Force Reserve and Air National Guard included tens of thousands of veteran personnel and hundreds of units whose continued association with the Air Force reflected more nostalgia than a hard core, well trained capability to meet current military situations. We have worked diligently to streamline our civilian components to include the most select and highly motivated individuals consistent with available funds and trained instructors. Their combined efforts have assured for the Air Force a smaller but fully trained supporting force that we hoped could be thrown into the breach at a moment's notice and start producing results without a hitch in our operational planning.

These years of confidence, of planning, and of work were consummated during the summer and fall of 1961 when the country was confronted with a grave national crisis over Berlin. The response to this crisis by both the regular and reserve components of the Air Force was a tribute to the planning and preparation carried out in previous years. The professionalism and dedication of the mobilized Air Force Reserve and Air National Guard units (27,000 personnel and 750 aircraft) were dramatically demonstrated in November 1961. Only 6 weeks after mobilization, more than 200 ANG pilots flew their F-84 and F-86 jets to Europe for combat-ready duty with U.S. and NATO defenses. The President's action in this emergency proved the wisdom of developing flexibility in the military forces to meet various kinds of situations.

Aside from the familiar mission-areas in which the Air Force constantly strives to improve its capabilities and performance, a new

OFFICE, SECRETARY OF THE AIR FORCE AND THE AIR STAFF



1 JULY 1962

Figure 2.

dimension is being introduced into the balance-of-power equation—space. In reality, space is simply an extension of the medium in which the Air Force traditionally operates. Under its assigned mission, therefore, the Air Force is concerned with preparations for dealing with threats to the security of the free world which may evolve through the use of space. By virtue of the experience and know-how gained through its contributions to the success of the NASA program, the Air Force is reaching a clearer definition of its own requirements. This is the reason for the growing research and development funds in the Air Force budget devoted to space.

From the time in 1954 when John von Neumann and his "Teapot" Committee made their recommendations regarding the feasibility of developing long range ballistic missiles which resulted in the highest national priority for this project, the Air Force has undergone a metamorphosis. The radically new management structure adopted to develop an operational missile was the forerunner of an Air Force-wide reorganization which included both the Air Staff and the field commands. This new structure is designed to cope with the problems of carrying research forward to second and third generation weapon systems, to provide for the complex logistics and installations necessary to site them, and last, but not least, to provide the trained manpower in a new range of skills not even known a decade ago at the onset of this revolution.

The magnitude and complexity of all the problems facing our government—political, diplomatic, social, and economic—necessarily form the environment in which we administer that portion of the national defense for which the Air Force is responsible. Our job ahead will not be easier. It will be different in detail but it will continue to call upon our dedicated military and civilian personnel in the U.S. Air Force for further investments of imagination and hard work to provide adequate national defense through aerospace power.

II. Combat Forces

The strained international situation over Berlin prompted President John F. Kennedy to call 36 squadrons from the Air National Guard (ANG) and Air Force Reserve (AFR) to extended active duty in October and November 1961 to reinforce the regular forces. All reserve units were scheduled to return to reserve status by August 31, 1962.

Largely as a result of the callup, the number of combat wings in the Air Force showed an upswing for the first time since 1957, rising from 88 to 97 equivalent wings (339 squadrons) in the year ending on June 30, 1962. Most of the increase in wing strength was centered in the tactical air forces, reflecting the emphasis on limited warfare and support of ground forces with conventional weapons.

Improvement in the tactical air forces in no way detracted from the recognition that the strategic air forces were the principal deterrent to general war. The Strategic Air Command (SAC) could deliver between 80 and 90 percent of the national offensive firepower in all-out war. SAC was allotted more than 60 percent of the funds in the USAF budget request for fiscal year 1963.

On September 19, 1961, the Secretary of Defense established the U.S. Strike Command (STRICOM) for operational control of the combat forces of the Strategic Army Corps (STRAC) and the Tactical Air Command (TAC). This new unified command set up temporary headquarters at McDill AFB, Fla., in November 1961, and became operational shortly thereafter. STRICOM, headed by an Army commander-in-chief with an Air Force deputy and chief of staff, included two component commands—the Air Force Strike Command (AFSTRIKE) and the Army Strike Command (ARSTRIKE). TAC remained a major Air Force command, providing training, equipment, personnel, and logistic support. Its commander also held a second post as Commander, AFSTRIKE.

STRICOM's integrated combat-ready land and tactical air forces can rapidly augment U.S. forces already deployed or carry out other contingency missions. The new command develops doctrine for the integrated employment of assigned forces and conducts the joint training necessary to weld them into an efficient air-land team.

The Air Force devoted a major effort to counterinsurgency—the resistance to covert or indirect aggression masquerading as “national liberation movements” or “popular revolts.” In February 1962 the Chief of Staff approved a plan to increase Air Staff emphasis on counterinsurgency. Measures were taken to develop special equipment, tactics, and skills; to orient and train personnel; and to improve operational intelligence.

To give focus to the counterinsurgency capability, the Air Force established in April 1962 the USAF Special Air Warfare Center at Eglin AFB, Fla. Two operational organizations functioned under this center—the 1st Air Commando Group, which concentrated on improving techniques for the employment of aircraft in counterinsurgency measures, and the 1st Combat Applications Group, which developed, tested, and evaluated new tactics and equipment for use in such operations. Personnel from the center also trained friendly foreign forces in Latin America and southeast Asia.

Technical progress was made to improve command and control of operational forces through the Headquarters Command Post and the Alternate Joint Communications Center. In January 1962 the Air Force accepted a system for automatic transmission of emergency messages. By commandeering normal circuits, Headquarters USAF and the major commands could maintain rapid and secure teletype communications. Leased computing equipment for the first phase of the Air Force Control System (473L), a data-processing and display system to facilitate command decisions, arrived in the command post in November and operational training began shortly thereafter. The Pentagon display facility for the Ballistic Missile Early Warning System (BMEWS) became operational in November. By the end of the fiscal year a prototype atomic bomb alarm system became fully operational, covering 99 potential target areas.

Strategic Air

The Strategic Air Command made distinct gains in striking power by adding later model aircraft and ATLAS and TITAN missiles to its inventory. During the fiscal year, four heavy bomber squadrons were equipped with B-52Hs and three heavy tanker squadrons were modernized with KC-135's. On October 7, 1961, a single jet tanker force was formed to serve both SAC and TAC. The SAC missile force increased substantially by three ATLAS and two TITAN I squadrons. As a special measure in response to the Berlin contingency, six B-47 wings and six KC-97 squadrons scheduled for inactivation remained operational for an additional year.

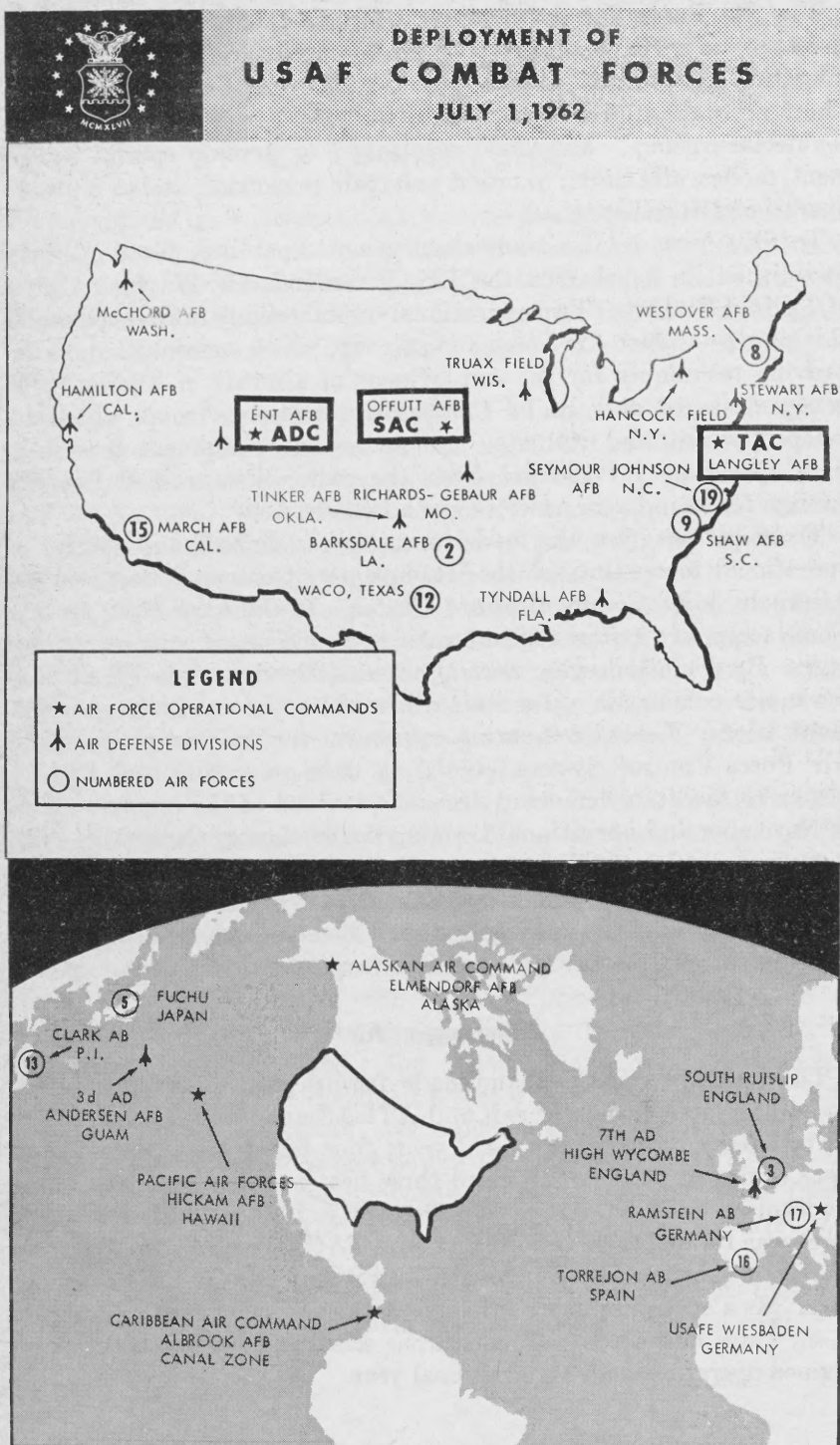


Figure 3.

On June 22, 1962, the 744th and last B-52 produced for SAC came off the assembly line. The extensive program to increase the effectiveness of the B-52 force continued on schedule. The last turbojet-powered QUAIL was delivered to SAC on May 28, 1962, completing the equipping of all squadrons authorized to carry the GAM-72 decoy missile. SAC squadrons were equipped with the GAM-77 HOUND DOG air-to-ground missile. The GAM-77 underwent intensive combat evaluation testing after successful completion of development testing.

The B-52H, final version of the aircraft, established 11 new speed and distance records in a point-to-point, nonrefueled flight in January 1962, flying 12,519 miles from Kadena Air Base, Okinawa, to Torrejon Air Base, Spain, in 21 hours and 52 minutes.

Maintenance and reliability problems were encountered by SAC's two B-58 wings, making it necessary to move back the operational readiness target dates to fiscal year 1963. The speed of this bomber was demonstrated on March 5, 1962, in a record-breaking round trip between New York City and Los Angeles in 4 hours, 41 minutes, and 11.3 seconds. On its east-west leg the Hustler beat the sun across the United States, attaining an average speed of 1,081.77 m.p.h. Average speed for the round trip, including turn-around time, was 1,044.96 m.p.h. The Air Force was awarded the Bendix Trophy for the Los Angeles to New York flight in 2 hours and 56.8 seconds, averaging 1,214.71 m.p.h.

SAC accepted its last ATLAS E squadron in November 1961, several weeks ahead of schedule. Contractors finished construction at all ATLAS F sites, and three of these squadron complexes became operational. On January 20, 1962, SAC crews ran through a TITAN salvo-firing operation, launching one "J" model from an underground silo at Vandenberg AFB, Calif., and readying another for firing. It was the first SAC combat crew launching of TITAN. In April and May 1962, the first two TITAN I operational squadrons, sited at Lowry AFB, Colo., entered the SAC inventory.

To protect the strategic strike force from surprise attack and to improve its capability for instant response to enemy threat, the Air Force raised the proportion of the SAC bomber force on 15-minute ground alert from one-third to one-half. The training program for an airborne alert also continued. Combat crews averaged more than 70 hours of duty time per week during fiscal year 1962, emphasizing the need to increase the crew-to-aircraft ratio. The SAC remote high frequency control system, which permits direct voice communication from SAC headquarters to the airborne bomber fleet, began operation early in the year.

Air Defense

Air defense weapons of the North American Air Defense Command (NORAD) improved in quantity and quality. On May 10, 1962, BOMARC-A completed its flight testing begun 3 years ago by intercepting a supersonic F-104 150 miles from its Eglin AFB, Fla., launching point. BOMARC-A is assigned to the bases in the north-eastern United States. It has a range of more than 200 miles and an altitude capability in excess of 11 miles. All BOMARC-B sites became operational, and a substantial number of these missiles joined NORAD's varied arsenal. Delivery of all BOMARC missiles will be completed during early fiscal year 1963.

The F-102 began operation with a new nuclear-armed air-to-air missile—the GAR-11. In addition, the Air Force started to modify the fire-control systems of the F-101B, F-102, and F-106 interceptors to extend their useful life. In accordance with a U.S.-Canadian agreement announced in June 1961, Royal Canadian Air Force units were equipped with the supersonic F-101B, permitting a more effective deployment of weapons.

Progress continued on the Continental Aircraft Control and Warning System (416L), which the Air Defense Command (ADC) operated in support of NORAD. The system—which includes the Distant Early Warning (DEW) line, the Semi-Automatic Ground Environment (SAGE) system, the Canadian Air Integration North (CADIN), and other elements—was about 80 percent complete at the end of the fiscal year. Two additional SAGE centers became operational, and a new section of the DEW line, comprising four stations in Greenland, extended coverage 1,200 miles to the west coast of Iceland. Early in fiscal year 1962 the Air Force began work on a backup interceptor control (BUIC) system to provide an alternative capability should SAGE centers be destroyed. Phase I was 80 percent operational at the end of the fiscal year. In March the Air Force obtained Department of Defense approval to proceed with Phase II, which would provide a semiautomatic backup control system based on alternate control centers. On February 1, 1962, the Department of Defense (DOD) approved in principle Project NORTHERN TIER embracing the proposed joint use of selected SAGE centers for civil air traffic control. Negotiations were begun with the Federal Aviation Agency to move civil air traffic control-centers at Great Falls, Mont., and Minneapolis, Minn., into the air defense SAGE centers at Great Falls, and into Minot AFB and Grand Forks AFB, N. Dak., within the next year.

The month of October 1961 saw two significant air defense exercises. On October 14–15, 1961, Operation SKY SHIELD II, the largest air

defense maneuvers ever held in the western world, pitted a force of about 250 bombers against 250 missile sites and 1,800 fighter planes, flying more than 6,000 sorties. The defenders were aided by flashes of approaching aircraft from the DEW line and other radar picket lines strung across the continent farther south. NORAD officials stated the exercise was 99.9 percent successful.

On October 23–November 2, 1961, WILLIAM TELL 61, an air defense test, brought together at Tyndall AFB, Fla., top ADC fighter-interceptor teams in a realistic defense exercise. In one of the key tests, 137 kills were made out of 142 weapons fired, a kill percentage of 96 percent.

The Ballistic Missile Early Warning System operated from the first two complete installations at Thule, Greenland, and Clear, Alaska, with a high degree of efficiency. In July 1961 the Space Detection and Tracking System (SPADATS) became operational with the capability to detect and identify objects in orbit. A number of further improvements will be necessary to attain the degree of efficiency desired.

USAF		COMBAT WING STRENGTH (AS OF JUNE 30)				
TYPE	1958	1959	1960	1961	1962	
Strategic	44	43	40	37	36	
Air Defense	28	27	23	19	18	
Tactical	45	35	33	32	43	
Total	117	105	96	88	97	

Figure 4.

The air defense manned interceptor and missile forces declined slightly from 19 to 18 equivalent wings during the year. As in the past, they were distributed in four major commands—the Air Defense Command (ADC), the U.S. Air Forces in Europe (USAFE), the Pacific Air Forces (PACAF), and the Alaskan Air Command (ALAC). In July 1961 the Air Force increased the number of Air National Guard (ANG) squadrons on 24-hour alert in support of ADC to 25. By the end of the fiscal year one-third of ADC's manned

interceptors were on 5-minute alert, requiring a 75-hour week from combat crews.

Tactical Air

The strength of the tactical air forces rose sharply—from 32 to 43 equivalent wings—reflecting the mobilization of Air Force Reserve (AFR) and Air National Guard (ANG) units. The intensified activity in TAC, USAFE, and PACAF resulted from the national policy to emphasize counterinsurgency and limited war forces, the creation of STRICOM, and the Berlin crisis in the summer of 1961.

The establishment of STRICOM emphasized the need for an increase in tactical fighter forces. In November 1961 the Air Force recommended five additional tactical fighter wings. The plan was well under way at the end of the fiscal year, with two wings already activated. The Air Force also planned substantial increases in TAC, USAFE, PACAF, and MATS combat airlift forces.

The tactical air forces received additional advanced aircraft. Two USAFE fighter wings converted from F-100's to F-105Ds, excellent aircraft in bad weather and at night. On July 10, 1961, a TAC F-105D completed a 1,520-mile nonstop, blind-flying mission at altitudes of 500 to 1,000 feet to test its capability to fly by radar under simulated combat conditions. The F-105Ds can deliver more than 6 tons of conventional bombs, and to make them even more useful in limited warfare, they will be modified to increase their capability with conventional munitions. The Air Force, in February 1962, also decided to purchase a number of F-4Cs (formerly the F-110A, a modified Navy F4H) to complement the F-105D and provide a broader production base in the event a sharp buildup in forces became necessary. The RF-4C was selected to replace the RF-105D for tactical reconnaissance. The RF-4C would give the Air Force a two-man, two-engine aircraft with short-field characteristics and outstanding speed and altitude performance. Final study contracts were let by the USAF in January 1962 for the TFX, a new tactical fighter being designed to meet both the land-based TAC and the Navy carrier-mission requirements.

During the past year the Air Force completed the phase-out of its first operational missile—the short-range surface-to-surface MATADOR—as USAFE and PACAF units completed conversion to the MACE. The new MACE B provides greater range, higher alert capability, quicker reaction, self-contained guidance, variable altitude and flight course plans, and larger payload.

The most important operational movement of the year involving TAC was the October–November force buildup in Western Europe

occasioned by the Berlin contingency. The Air Force deployed 11 ANG tactical squadrons to France and Spain, where they served under USAF control for most of the year. The movement of 200 F-84 Thunderjets and F-86 Sabrejets by recently mobilized ANG pilots was the largest single oversea deployment of tactical fighter planes since World War II. USAFE raised five dispersed standby bases to minimal operating standards for these units.

Tactical air forces carried out an unusually large number of operational exercises during the year. USAFE and PACAF, with the assistance of TAC, conducted Exercises THUNDER EAST and THUNDER WEST in July 1961 to demonstrate for oversea Army commanders the close-support capability of the F-105. TAC, CONAC, MATS, and the Army's 82d and 101st Airborne Divisions participated in SWIFT STRIKE in August 1961. This largest Army-Air Force peacetime exercise to date included the parachuting of 7,500 troops of the 82d Airborne Division, from Air Force planes. TRAIL BREAK was a joint TAC-Continental Army Command (CONARC) cold weather exercise held in the Camp Drum, N.Y., area in December 1961. This was the first exercise carried out by elements of the new STRICOM.

STRICOM also carried out or played a major role in three other exercises. RED HILLS, held at Fort Campbell, Ky., during the first 2 months of 1962, simulated the deployment of Army and Air Force units to oversea staging bases to conduct joint airborne operations against an aggressor. Mobilized ANG tactical squadrons played an important part. BANYAN TREE III, held in the Republic of Panama during February and March 1962, tested the problems of deploying a STRICOM task force, employing it in combat operations, and returning it. More than 1,000 airborne troops supported by troop carriers, jet reconnaissance, and fighter aircraft participated in the maneuver. CLEAR LAKE, held at Eglin AFB, Fla., from May 25 to June 10, 1962, was designed to develop further techniques of air support of ground troops, employing conventional weapons.

Overseas, in April 1962, Exercise AIR COBRA conducted a week-long test of SEATO's tactical airpower. The knowledge gained from this test was put to use on May 12, 1962, when President Kennedy ordered deployment of reinforcements to southeast Asia to assist counterinsurgency actions against Communist encroachments. The first reinforcements, 12 Pacific Air Force F-100's, flew from the Philippines to Ta-Khli, Thailand, on May 16. They were part of a mobile strike force which included RF-101 reconnaissance aircraft, C-124 and C-130 transports, KB-50 tankers, along with communications and air rescue detachments.

Air Transport

The Military Air Transport Service (MATS), which includes the bulk of the USAF air transport, contracted for more of its logistic support with civil airlines. MATS' expenditures for civil contract airlift rose to \$184,827,710. Nearly 80 percent of the flying effort in recent years was devoted to logistic support. In fiscal year 1962, this dropped to 50 percent and was expected to decline to about 40 percent in the coming period. At the same time the number of missions performed in support of military training exercises and in special airlift assignments continued to rise.

MATS participated in a total of 43 major exercises, most of them in conjunction with Army, Navy, and Air Force combat units. These fell into three main categories—joint airborne training, contingency exercises involving tests of strategic mobility, and tests of general war plans. An example of the first type was SWIFT STRIKE, held in conjunction with TAC and CONARC in the Carolinas in August 1961. In this exercise 254 troop carrier aircraft flew 1,371 sorties, airdropping 11,912 paratroops and airlanding or airdropping 4,586 tons of cargo. LONG THRUST IIA, in January 1962, was a significant test of strategic mobility, in which MATS used its new C-135 jet transports to deploy a STRICOM battle group. The jets flew nonstop on a polar route from McChord AFB, Wash., to Rhein-Main, Germany, in approximately 10½ hours, in contrast to the 32 to 36 hours required by the piston-driven aircraft via island-hopping. In a similar exercise, GREAT SHELF, in February 1962, MATS deployed a STRICOM battle group from Fort Campbell, Ky., to the Philippine Islands. MATS also supported NATO in Exercise CHECKMATE, designed to test defensive capabilities of air, ground, and naval forces. This involved the airlift of a STRICOM battle group and the support for a Composite Air Strike Force from the United States to the Middle East.

MATS also carried out a number of special assignments at the direction of the Department of Defense. In support of Operation DEEP FREEZE 62, it airlifted over 1,800 tons of supplies and equipment to McMurdo Sound, the South Pole, and other sites in Antarctica. MATS airlifted missiles, related components, and equipment to the operating or test location in support of the ATLAS, TITAN, POLARIS, MINUTEMAN, QUAIL, and HOUND* DOG, since the delicacy of components and the urgency of delivery made the transport function critical. For Project MERCURY, MATS not only moved items to Cape Canaveral but airlifted the tracking personnel and their equipment to sites around the world. MATS, in cooperation with USAFE, continued to support the United Nations Congo opera-

tion and by January 1962 had expended over 38,000 hours of flying time with costs in excess of \$20 million since the beginning of the airlift on July 17, 1960. Other special assignments for MATS included military assistance missions and mercy missions, such as air-dropping 1,549 tons of maize to 55,000 starving Tanganyikans, isolated in a flooded area.

The short-range modernization program, authorized in fiscal year 1961, centered around the acquisition of C-135 jets and C-130E turboprops. There was definite progress during the year with the production of 41 C-135's. The speedier C-135 can fly twice as many missions in a 5-day period as the older transports it replaces, and its ton-mile capability per flying hour is about $2\frac{1}{2}$ times as great. The first C-135B, which has turbofan engines of increased performance, entered the MATS inventory in March 1962. The Air Force accepted the first two C-130Es, which will go to both MATS and TAC, in April 1962. The C-130E can overfly the Atlantic with a payload of 27,000 pounds.

The Air Force continued its efforts to increase the carrying capacity, efficiency, and responsiveness of the Civil Reserve Air Fleet (CRAF). Although the number and total cargo capacity of the CRAF increased somewhat, many of the aircraft converted from passenger to cargo planes could not carry "outsize" objects satisfactorily. Carriers were also reluctant to place firm orders for modern turbine-powered cargo aircraft such as the C-141 Starlifter, which the Air Force considered essential in future military operations. CRAF operators were committed by contract to expand military support operations on demand in an emergency short of war and all were by law subject to call in the event of war. The Air Force considered it advisable that the President's authority to take control of transportation systems in wartime should be enlarged by legislation to cover periods of national emergency short of war. The Secretary of the Air Force stated this position for the Department of Defense in letters to the House and Senate in January 1962.

In the fall of 1961, five AFR C-124 squadrons reported to TAC and six ANG C-97 squadrons to MATS. Since both types of aircraft were relatively new to the recalled squadrons, the first 3 months were devoted to intensive training, and all units were operationally ready on January 1, 1962. Otherwise, the strength of MATS remained relatively stable, with three C-135 squadrons added; one of these was a reorganized C-124 squadron.

During fiscal year 1961, new minimum rates for passenger travel were set by the Civil Aeronautics Board (CAB). As a result, MATS costs for civil contract carriers substantially increased. In February 1962, CAB reduced minimum roundtrip rates from 2.9 to 2.75 cents

per mile. MATS estimated that this reduction would save about 6 percent of its civil contract carrier costs.

In November 1961, the Secretary of Defense directed MATS to conduct safety capability surveys to assist the Defense Traffic Management Service in selecting commercial carriers for short-term domestic airlift. The directive, which followed the crash of a contract airliner with 77 Army recruit fatalities, required that only certificated supplemental carriers approved by MATS and certificated route carriers would be used for short-term domestic military passenger airlift.

Special Operational Services

By June 1962, the end of its first year as a major command, the Air Force Communications Service (AFCS) had assumed responsibility for communications from all major USAF commands with the exception of TAC, ADC, and SAC. TAC was scheduled to turn over its responsibility in fiscal year 1963 and ADC and SAC a year after. The integration during fiscal year 1962 made available 1,700 manpower spaces for other uses. On July 1, 1962, AFCS took over the Alaska Communications System from the U.S. Army. This system included internal and external communications for both governmental agencies and the general public. The Air Force continued to modernize its aerospace communication complex, with the high frequency phase (Quickfix) about 95 percent complete.

The Air Force allocated \$726.4 million for procurement of communication and electronic equipment. This money was used to complete the purchase of hardware at BMEWS sites in Alaska and Greenland and to continue buying items for the United Kingdom site. In addition, funds were utilized to modernize and support the strategic and tactical command and control systems and the continental aircraft control and warning system as well as to equip the NORAD Combat Operations Center at Colorado Springs, Colo.

The Air Weather Service (AWS), operating under MATS, continued to provide meteorological support for the Air Force and the Army. Operating a worldwide net of over 400 stations, the AWS provided such routine service as 4 million surface observations, 2.4 million initial forecasts for military flights, and 500,000 pilot-to-forecaster reports. The over-all modernization program, costing more than \$70 million, will result in a global semiautomatic system for observing, forecasting, and handling weather information. Procurement and installation began in January 1962 and will continue for the next 5 years. Most of the programmed 87 installations are expected to be operational by the end of 1967. After the Department of Defense named the AWS single manager for atmospheric sam-

pling on August 31, 1961, the service expanded its weather reconnaissance forces by 25 aircraft.

As a final step in the consolidation of USAF rescue missions, the Air Rescue Service (ARS) of MATS assumed responsibility on October 1, 1961, for base rescue by helicopters. During the remaining 9 months of fiscal year 1962, ARS helicopters flew 4,917 missions, saved 74 lives, and assisted 796 distressed persons. For the entire 12 months ARS fixed-wing aircraft saved 201 lives and assisted 540 people in distress. Two ARS aircraft were the first to arrive over downed astronaut Lt. Comdr. M. Scott Carpenter when he landed in the Atlantic Ocean on May 24, 1962. As his capsule came down in the water, two USAF paramedics from the Air Rescue Service jumped to assist him and to keep the capsule afloat until a Navy helicopter arrived and picked up the astronaut. As coordinator for the continental United States under the National Search and Rescue Plan, ARS coordinated 642 missions, involving 14,934 airborne sorties to aid 1,348 persons. As a result, 834 were rescued, 379 were found deceased, and 135 never located. The Air Force added one squadron to the ARS to meet the increased requirements of the national space effort and tactical aircraft deployments. ARS strength rose to 11 squadrons with a total of 65 fixed-wing and 150 rotary-wing aircraft.

The Air Photographic and Charting Service (APCS), also under MATS, continued its airborne geodetic survey of the globe by completing about 70 percent of the measurements to establish the Brazil-Venezuela tie, completing most of the survey of the Midway-Hawaii-Johnston island chain, and beginning the southwest Pacific geodetic survey. APCS also completed the initial geodetic surveys for ATLAS complexes ahead of schedule.

III. Manpower

USAF military manpower increased considerably because of the Berlin crisis, rising to 884,025 on June 30, 1962, from 821,151 a year earlier. The 1962 figure included 134,908 officers and warrant officers and 749,117 airmen, of whom about 3,300 officers and 23,000 airmen had been recalled from the reserve forces in October and November 1961. Approximately 26,200 officers and 193,100 airmen were stationed overseas on June 30, 1962. The number of direct-hire civilians rose from 303,376 to 306,181. Since the personnel ceilings for June 1962 had been established at 888,000 military personnel and 307,400 civilians, the Air Force remained somewhat under authorized strength.

Airmen

During the Berlin crisis the Air Force not only called up about 23,000 airmen reservists but also retained on active duty many skilled technicians who were scheduled to separate during fiscal year 1962. As a result, the number of airmen became larger than the authorized strength, and the Air Force released more than 2,000 men in May and June 1962.

The reenlistment rate for first-term airmen rose about 11 percent—from 24 percent in fiscal year 1961 to approximately 35 percent in fiscal year 1962.

Officers

Both the regular and reserve components were short of officers with critical skills in the proper grades. The Air Force remained about 2,200 short of its officer requirements at the end of June 1962—just the reversal of the airman manpower situation. The restrictions imposed in the fall of 1961 on the release, resignation, and retirement of officers because of the Berlin contingency were to be lifted in October 1962.

USAF studies indicated a need for more than 1,500 pilots per year through fiscal year 1968, and, in August 1962, the Air Force's proposed pilot training rate through fiscal year 1966 was approved.

A shortage of regular and reserve officers in field grade continued to trouble the Air Force, which regarded the Officer



TOTAL MILITARY PERSONNEL

FISCAL YEARS 1958 - 1962

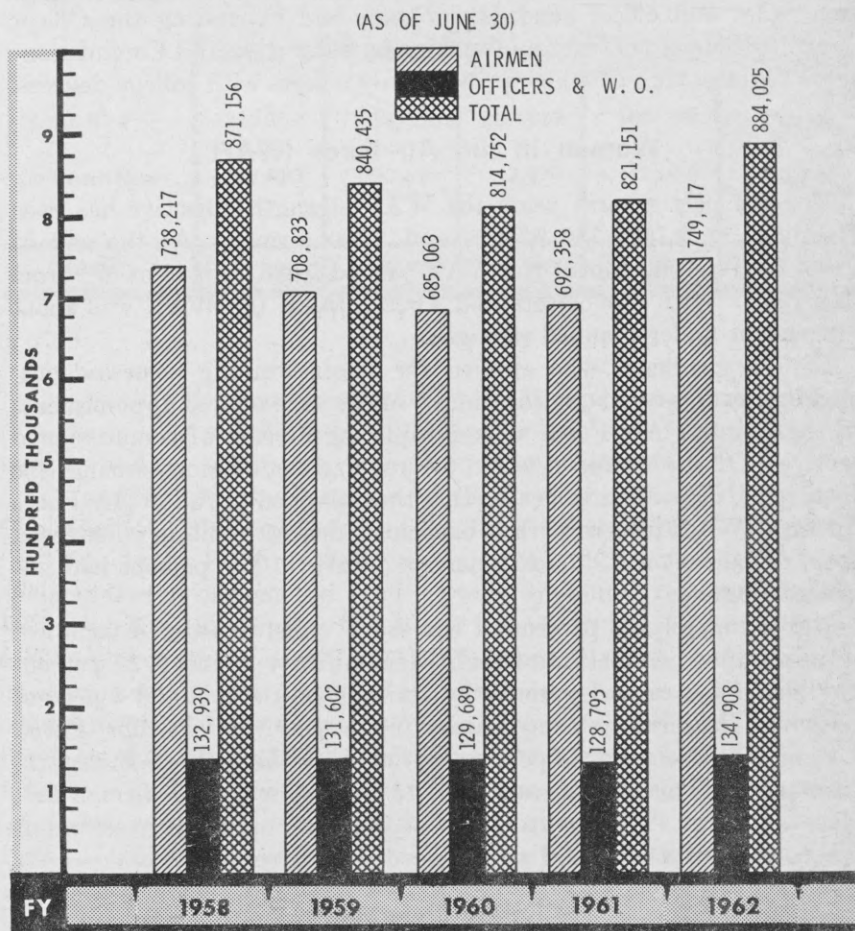


Figure 5.

Grade Limitation Act of 1954 (OGLA) as not providing equitable advancement opportunities for its officer corps as compared to those afforded Army and Navy officers. In June 1960, the Air Force received some legislative relief when the Congress permitted it to exceed the legal ceiling for majors by 3,000. In September 1961, the Congress further relieved the USAF shortage of grade vacancies when 4,000 additional lieutenant colonel positions were authorized through

June 1963. Efforts to obtain permanent relief included the recommendations of the Bolte Committee in January 1961 to establish uniformity in promotion policies among the three Services.

The Air Force decided that at least 95 percent of its new officers must have college degrees. For this reason it is eliminating the aviation cadet and officer candidate schools and expanding the Officer Training School (OTS) and the Airman Education and Commissioning Program, both of which provide only officers with college degrees.

Women in the Air Force (WAF)

For the past several years the WAF strength objective has been stabilized at 5,750—750 officers and 5,000 airmen. At the end of June 1962 the number of the WAF totaled 5,486, a drop of 473 from last year. With 664 officers and 4,822 airmen, the WAF was about 4.6 percent under planned strength.

College graduates who applied for officer training possessed outstanding professional qualifications. Many were offered appointments in the Regular Air Force after completing 2 years of commissioned service. Of the women selected for regular commissions during this fiscal year, 67 percent indicated that they planned to follow Air Force careers. WAF officers with a bachelor's degree or higher increased from 61 percent in 1957 to 79 percent in 1961. Ten percent had advanced degrees.

Approximately 60 percent of the WAF enlistees entered technical training upon completion of their basic military training, 37 percent qualified for a career specialty by training on the job, and 3 percent possessed required job proficiency upon entering the Air Force. Among WAF airmen, 22 percent served in grades from staff sergeant through chief master sergeant, and 78 percent served as airman first class or below. Thirty-three percent were serving in their second or subsequent enlistment and were regarded as career women.

Civilian Personnel

The gradual trend toward a higher percentage of salaried Air Force employees as compared to hourly wage earners continued during fiscal year 1962. The proportion has risen steadily since 1955, when it was 42 percent, to 52 percent in 1962. This trend reflected the increasing need for highly skilled professional and technical civilians.

Overseas, the Air Force continued to employ a number of local nationals indirectly through contract or agreements with their Governments. The number fell slightly this year, dropping to 42,400, the lowest figure since before the Korean war, and about half as many as were employed 7 years ago.



TOTAL CIVILIAN PERSONNEL

FISCAL YEARS 1958 - 1962

(AS OF JUNE 30)

	1958	1959	1960	1961	1962
Direct Hire	315,806	313,466	307,449	303,376	306,181
Contract Hire	56,883	50,628	47,479	42,428	42,351
Total	372,689	364,094	354,928	345,804	348,532

Figure 6.

The worldwide monthly turnover rate changed very little during this year. The average monthly accession rate rose from 1.5 to 1.7 percent, and the separation rate remained at 1.6 percent.

In January 1962, by direction of the President, the Civil Service Commission established boards at 10 U.S. cities to improve coordination among the Federal employee management offices. USAF base commanders in or near the 10 cities were appointed to these boards. President Kennedy expressed personal interest in four aspects of Federal employee management: (1) Ethical conduct; (2) equal employment opportunity for people of all races and religions; (3) friendly management relations with employee organizations; and (4) unhampered employee appeals from adverse supervisory action. He issued Executive Order 10988 to facilitate better management relations with organized employee groups, and four seminars were held in June 1962 to explain and expedite fulfillment of the President's wishes. Representatives of all major USAF commands and central civilian personnel offices attended these seminars.

The Air Force brought together in one directive all appeal procedures available to employees and former employees. The new regulation in general emphasized procedures to resolve employee complaints informally at the lowest supervisory level. As a result of Executive Orders 10987 and 10988, the Air Force further modified the USAF appeal system by eliminating appeals to major air commands and providing that the Office of the Secretary of the Air Force will review appeals from decisions of installation commanders. The Air Force also issued a directive putting into effect Executive Order 10925, concerning fair employment practices. Under this

order, USAF officials must insure that all personnel actions are based strictly on merit and fitness.

The Air Force career development program received new funds to train employees in facilities outside the Government. To administer centrally education in logistics the Air Force transferred the entire program from the Logistics Command to the Air University. Between January and June 1962 the Air Force and the U.S. Civil Service Commission completed arrangements for civilians to attend the senior officer courses at Air University. This is expected to expedite the preparation of Air Force civilians for key executive positions.

During fiscal year 1962, Congress provided 21 additional Public Law 313 and 4 additional supergrade positions to the Air Force, bringing the total USAF authorization to 147 Public Law 313 spaces and 87 supergrades.

To assist civilian employees overseas to find jobs in the continental United States, a new USAF regulation provided relocater assistance to qualified personnel to include consideration, consistent with USAF needs, of the employee's preference in geographic location. The regulation also provided reimbursement of expenses to an employee who makes a permanent move at the Air Force's request.

The suggestion program continued to return substantial benefits to the Air Force. Employee participation rose to more than 30 percent—an all-time high—with first-year tangible benefits exceeding \$36 million.

The Secretary of the Air Force established a new decoration for valor to be awarded to employees who exhibit great courage and incur personal risk in the face of danger. The Chief of Staff and major USAF commanders will also award a decoration to employees who show unusual courage or competence in an emergency.

IV. Military Training

Since World War II, and particularly during the last 5 years, the trend has been toward an increase in the number of highly skilled and professional positions and a drop in unskilled and semiskilled jobs. The Federal Government in 1962 employed more people in engineering than in straight typing, and more in physical science positions than in mail and file work. The Air Force, with its missile and space activities and its operation of complex warning and communication devices, was a leader in the general trend.

Technical Training

Student enrollment in basic military and advanced technical courses (including foreign language training) averaged about 61,000 during the fiscal year, approximately 3,000 above the previous period. Graduations from technical training courses totaled about 125,400, compared with 100,186 in fiscal year 1961. The technical schools had no serious problems, however, except in courses where new items of equipment were in short supply. During the year the Air Force recruited approximately 109,000 airmen without previous military service and about 5,400 with previous service. This increased workload, partly attributable to the Berlin crisis, strained basic training facilities at Lackland AFB, Tex.

The shortage of equipment for training in ballistic missile maintenance continued to pose a problem because operational ballistic missiles could not be used for training purposes. To help solve this problem, a traveling instructor team visited missile sites to check on the adequacy of training, eliminate deficiencies, or recommend corrective action. The Air Training Command (ATC) and SAC began to test this method in May 1962 for TITAN I missile training.

In February 1962, the Secretary of Defense assigned to the Air Force the responsibility for military air intelligence training, including photographic interpretation and radar analysis. The assignment will become effective when the USAF plan for conducting the training is approved. This plan, almost completed at the end of June, provided for inter-Service staffing of the faculty for the new training

courses and satisfied the specialized requirements of the other Services and the Defense Intelligence Agency (DIA), established in August 1961.

Television can bring into the classroom missile trainers too large to be moved, magnify minute electronic guidance equipment, and enable outstanding instructors to reach a larger number of students. In January the Air Force opened new closed circuit television networks at Sheppard Technical Training Center, Wichita Falls, Tex., and Keesler Technical Training Center, Biloxi, Miss. The Sheppard network will eventually transmit six different programs simultaneously to 58 classrooms. This will be of greatest benefit to the 2,000 airmen and officers studying ATLAS and TITAN missiles, for they will be able to witness missile launchings, view the complexes inside underground silos, and study the equipment they will later operate and maintain. The Keesler network will transmit a course in electronic principles, a prerequisite to training in radio, radar, and electronic countermeasures.

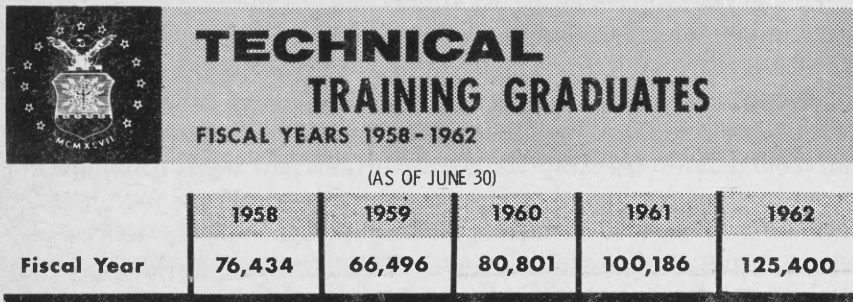


Figure 7.

Flying Training

During fiscal year 1962 the Air Force graduated 1,621 pilots, 564 or about 26 percent fewer than in 1961. This total included 1,304 for the Air Force, 62 for the Air National Guard, 142 for foreign countries in the Military Assistance Program (MAP), and 113 for those not in MAP. The Air Force conducted undergraduate pilot training on eight bases. Navigator graduates declined 47 percent, from 2,425 to 1,281. Of the 1,281, the Air Force obtained 1,239; the ANG, 29; MAP countries, 11; and non-MAP nations, 2. In June the last navigator class graduated from Harlingen AFB, Tex., and the Air Force declared the base surplus. More than 13,300 students received their navigator ratings at Harlingen during its 10 years as a navigator training base.

In March 1962 the T-38 supersonic basic trainer successfully completed its final suitability test. Webb AFB, Tex., began regular T-38 training in February. All but 1 of the 26 students who started, graduated. Williams AFB, Ariz., will start T-38 training early in fiscal year 1963. At Moody AFB, Ga., training for foreign students in the conventional T-28 expanded. The large number of students from the Republic of Vietnam who will receive T-28 instruction are expected to absorb about half of the base's training capacity.

In December 1961 the Instrument Pilot Instructor School completed its move from James Connally AFB, Tex., to Randolph AFB, Tex. After the introduction of the T-38 and T-39, the instrument school conducted training in four types of aircraft: The T-29 and T-39 for cargo, transport, and bomber pilots, and the T-33 and T-38 for all other pilots. The school also provided T-39 instructor training for the commands receiving this new aircraft.



**FLYING
TRAINING GRADUATES**
FISCAL YEARS 1958 - 1962

(AS OF JUNE 30)

	1958	1959	1960	1961	1962
Pilots	4,207	2,698	2,342	2,185	1,621
Navigators	2,108	1,587	1,615	2,425	1,281
Total	6,315	4,285	3,957	4,610	2,902

Figure 8.

The Air Force transferred the Interceptor School at Perrin AFB, Tex., from ATC to ADC at the end of June. This was part of the general trend toward giving the combat commands control over advanced flying training. The helicopter school is ATC's only remaining advanced flying facility.

In December 1961 the first class graduated from a newly established aerospace research pilot course at Edwards AFB, Calif. The course consisted of 6 months of technical, scientific, and flying training oriented toward the exploration of space. Four graduates remained at the school as faculty members; the fifth, assigned to the X-15 project, is being considered for transfer to NASA as an astronaut.

In June a second course started a 7-month training program for future operational astronauts.

Counterinsurgency Training

Headquarters, USAF, directed greater emphasis to the study of counterinsurgency throughout the Air Force. The Air Force Academy, the Air University, and ATC identified subjects in their curricula relating to the waging of local, guerrilla-type warfare and determined what additional counterinsurgency training appeared to be necessary.

The Air University introduced a 2-week course on counterinsurgency to begin in July 1962. Training was scheduled for 248 officers assigned to foreign missions, Military Assistance Advisory Groups (MAAGs), and attaché work, and for selected staff and operational personnel. Training films based on this course will be used throughout the Air Force. ATC also reviewed its curriculum to bolster counterinsurgency training in all basic airman and officer courses. The survival and special training school at Stead AFB, Nev., established special courses for men of the 1st Air Commando Group and added 21 hours of counterinsurgency subjects to the basic survival curriculum.

Professional Education

The ROTC program, which had previously furnished large numbers of college-trained officers and as late as 1952 had furnished some 27,000 officers to the Air Force, was unable to meet the demand for new officers. Between May 1, 1961, and May 31, 1962, there were 3,628 AFROTC graduates, 349 more than last year. Approximately 3,740 students completed AFROTC summer training in 1961, and about 4,100 were enrolled for the 1962 courses. The Air Force hoped to increase enrollment in the 1963 summer program to about 5,500. Another factor in the decline of officer candidates was the USAF requirement that all new officers have college degrees. To increase the number of qualified officer candidates available for duty, the Air Force planned to abolish the Officer Candidate School by June 1963 and to expand enrollment in the Officer Training School for fiscal years 1963-67 to between 4,600 and 5,000 students per year. OTS graduated 2,262 and OCS 478 during fiscal year 1962. The quota for the Airman Education and Commissioning Program, recently raised from 200 to 400 students, was filled by June 1962.

The Air Force planned to remedy long-standing deficiencies in the AFROTC by: (1) Replacing the present AFROTC with the Air Force Officer Education Program (AFOEP), which would be a 2-year course given in the junior and senior years of college and

would provide a merit scholarship for each candidate for a commission; (2) orienting the program toward providing regular and reserve officers for the active establishment; (3) cutting air science instruction to one 3-hour course each semester; (4) providing two summer training tours; and (5) continuing to require a 4-year tour on active duty after all training had been completed. Under the proposed legislation, a college with ROTC could either elect to keep the current 4-year program or choose the new Government-subsidized program, but not both. ROTC will not be eliminated at any institution until AFOEP goes into effect. The Air Force obtained 55 graduates from this program during its 2 years of operation. In February 1962, the Air Force decided to consolidate the AFOEP with the OTS and the AFROTC. Details of the consolidation were being worked out with Air University at the end of June.

Officer procurement through this program will acquire critical importance in the decade ahead. A major portion of the officers commissioned during World War II will retire during the period 1968-73 because of age and length of service. About 900 new lieutenants will be required each year for the next few years, and this figure is expected to increase by 50 percent as mandatory retirements become numerous. To get the required 900, the Air Force plans to obtain 500 from the AFOEP and 400 through direct commissioning of outstanding ANG and AFR airmen.

The Air Staff and the Air University arranged an educational program with George Washington University, Washington, D.C., whereby Air War College students, faculty, and recent graduates could apply their studies toward obtaining college degrees. George Washington University established a center at Maxwell AFB, Ala., to supervise the program, which began in August 1961. The student who completed the Air War College course of study was credited with 15 semester hours toward a college degree. Graduates could continue to study toward degrees at any one of George Washington's several education centers. A similar arrangement for students of the Air Command and Staff College will go into effect in August 1962. Students in both programs may also work toward graduate degrees.

After a successful test at five USAF bases during 1961, the Air War College established a nonresident associate course at the Pentagon. In February 1962, 15 Air Staff colonels and lieutenant colonels began a 2-year course that will include weekly seminar meetings and the writing of a thesis.

The Air Force awaited final approval by the Department of Defense of its plan for increasing future enrollments in the Air Force Institute of Technology (AFIT) to 4,000 officers in fiscal year 1963 and 4,500

by 1964. Congress authorized \$4 million for improved AFIT School of Engineering facilities at Wright-Patterson AFB, Ohio. About 80 percent of AFIT's students attend civilian colleges and universities.

On June 6, 1962, the Air Force Academy graduated its fourth class. Of 297 graduates, 290 were commissioned in the Air Force, 1 in the Army, 3 in the Navy, and 3 in the Marine Corps. Air Force commissions were also granted to 62 graduates of the U.S. Military Academy and 80 graduates of the Naval Academy who requested transfers.

The academic attainments of the Air Force Academy graduates remained high. In competition with graduating classes of 186 leading U.S. colleges and universities, the class of 1961 ranked first in natural sciences, second in social sciences, and sixth in humanities. Two Academy cadets and one graduate won Rhodes Scholarships, raising the number awarded to academy students to four.

In June 1962, a plan to establish a basic research laboratory at the Academy was approved. Under the supervision of the Air Force Office of Aerospace Research, the laboratory will be the first such facility to be established at a Service academy. The laboratory will be operative in the fall of 1962 in two fields—chemistry and servomechanics.

In June 1962 foreign students were admitted to the Academy for the first time. One each came from Bolivia, Peru, the Philippines, and Thailand. Foreign students had not been admitted until the cadet wing reached its full authorized strength of U.S. students. The Board of Visitors recommended that a study be undertaken to determine how a master's degree may be awarded to qualified cadets. The board also recommended that an airfield and fieldhouse be constructed at the academy site.

Reserve Forces

The Berlin crisis of 1961-62 afforded the reserve forces an opportunity to demonstrate the effectiveness of their training and management. One complete tactical control group, 36 flying squadrons, 8 weather flights, and support elements for the flying units were ordered to active duty in October and November 1961. This mobilization increased the active strength of troop carrier units by 17 percent, heavy transport units by 28 percent, tactical reconnaissance units by 28 percent, and tactical fighter units by 37 percent. Seven ANG fighter squadrons, one tactical reconnaissance squadron, and the tactical control group were deployed to European bases about a month after the October recall. Aircrews of the flying squadrons flew more than 200 F-86Hs, F-84Fs, and RF-84Fs across the Atlantic in the largest single oversea flight of jet fighters in history. The entire movement took place without accident.

Three ANG F-104 squadrons, called to active duty on November 1, dismantled their aircraft for shipment overseas in MATS C-124's and reorganized to change from an air defense to a tactical fighter mission. The units began to move to bases in Germany and Spain on November 10, and one was fully operational and standing runway alert at Moron Air Base, Spain, on November 24.

Despite logistical and other problems, the units deployed overseas were quickly incorporated into the USAFE. After receiving specific missions and targets, they became an integral part of the U.S. contribution to NATO military forces.

The recalled units that remained in the United States assumed important missions and performed them equally well. Fighter and reconnaissance units assigned to TAC intensified their training, participating in STRICOM exercises and joint exercises with the Army and the Navy. Five AFR troop carrier squadrons, in the early stages of transition from C-119's to C-124's when recalled, achieved a satisfactory degree of operational readiness within 3 months and began flying airlift missions for the Air Force and the Army. ANG heavy transport units, recently converted from various types of jet fighters to C-97's, became a part of MATS and flew strategic airlift missions to Europe, the Far East, southeast Asia, the Middle East, Africa, South America, and Alaska.

ANG and AFR units not recalled to active duty continued to improve their effectiveness by performing required USAF missions. AFR troop carrier units continued to perform day-to-day airlift for TAC and the U.S. Army, flying the same kind of missions that were flown by TAC aircrews. AFR rescue squadrons operated from Eglin AFB, Fla., Goose Bay, Labrador, and Prestwick, Scotland, in support of the ANG deployment to Europe.

Fifteen ANG ground electronic squadrons installed equipment on 26 USAF projects and brought 25 others to within 75 to 90 percent of completion. Principal projects included cable construction and splicing and installation of antennae, radio and radar control towers, and navigational aids.

The personnel strength figures of the ANG and AFR dropped below that of June 1961 because nearly 26,000 recalled Guardsmen and AFR members were still on active duty on June 30, 1962. On that date, the number in the Ready Reserve was 253,795 as compared with 284,766 a year earlier. The new figures included 50,319 in the ANG and 203,476 in the AFR. Standby reserve strength fell from 265,593 to 184,766, largely because of the expiration of enlistments and periods of military obligations.



READY RESERVE FORCES

FISCAL YEARS 1958 - 1962

(AS OF JUNE 30)

	1958	1959	1960	1961	1962
ANG	69,995	70,994	70,820	70,895	50,319
AF Reserve	214,809	225,819	202,506	213,871	203,476
Total	284,804	296,813	273,326	284,766	253,795

Figure 9.

The reserve forces face severe shortages in trained manpower in the near future because most of the reserve officers commissioned during World War II will retire during the period 1968-73.

The Air Force is studying means of alleviating the critical shortage of skilled airmen in the reserves. The best source for obtaining these airmen is from among the thousands being separated each year from the active establishment. Few of these become active in the reserve forces, however, because there are inadequate incentives to persuade them to follow a regular course of training or to compensate for the loss of free time.

On July 1, 1961, the Air Force established 268 Recovery Reserve units in 47 states. In the wake of nuclear attack, these Reserve units would provide refueling, some maintenance, security, and medical services for returning USAF aircraft. By June 30, 1962, the AFR Recovery Program included 292 units. The fiscal year 1963 program limited paid-drill spaces to 20,000, paid drills per year to 24, and costs to \$11 million. A proposal for increases in strength, drills, and funds was under consideration at the end of the year.

The mobilization reduced the aircraft inventory of the reserve forces as well as its personnel. Aircraft in the ANG inventory numbered 1,216 on June 30, 1962, or 783 below the total a year earlier. The AFR decreased by 99 aircraft, falling to 704.

V. Health and Welfare

A career in the U.S. Air Force gave officers and airmen the advantages of ever-increasing health and welfare benefits which the Air Force considered basic to the maintenance of high morale. There were improved medical services, new hospitals, new chapels, and new courses for off-duty educational opportunities. In fiscal year 1962 the Air Force began to grant a limited number of academic scholarships and interest-free loans to college-age dependents in addition to the assistance given by the Arnold Educational Fund. It also started to give financial aid to families with disabled children.

Medical Service

Health in the Air Force

The good health of Air Force members was shown in the record. Fewer personnel sought medical treatment and fewer were off duty because of medical reasons. The Medical Service expanded and improved programs for clinical and preventive medicine, professional training, health education, and aeromedical evacuation.

The annual rate of admissions to medical facilities for treatment decreased to an all-time low of 204 (from 222 in 1961) per 1,000 average strength, while the average daily number of noneffectives per 1,000 continued to decrease—fiscal year 1960, 9.2; fiscal year 1961, 8.3; and fiscal year 1962, 7.3. This substantial improvement was achieved during a period of increasing military strength. The average daily number of USAF personnel occupying hospital beds also decreased from 5,170 in 1961 (6.3 per 1,000) to 4,977 (5.8 per 1,000).

Medical Personnel

To care for its larger military strength, the Air Force increased the number of officers and airmen in the USAF Medical Service especially in the professional categories:

<i>Personnel</i>		<i>June 30, 1961</i>	<i>June 30, 1962</i>
OFFICERS	-----	10,781	11,760
(Hospital residents and interns)	-----	(443)	(482)
Physicians	-----	3,315	3,816
Dentists	-----	1,797	1,940
Veterinary Officers	-----	310	322
Medical Service Corps	-----	2,075	2,073
Nurses	-----	3,113	3,430
Medical Specialists	-----	171	179
AIRMEN	-----	23,895	25,025
Medical Duties	-----	20,835	21,836
Dental Duties	-----	3,060	3,189

The primary problem in medical officer staffing is retention of qualified specialists. Too many young medical officers who receive in-service residency training submit their resignations on completion of their mandatory commitments. Of the many contributing factors, the most important is economic.

Through the Department of Defense's allocation program, the Air Force commissioned 722 medical school graduates from 1961 classes, 192 more than in the previous year. Of these, 432 were deferred from active duty in order to complete residence training in needed specialties, bringing to 953 the number in residence on June 30, 1962. In fiscal year 1962, 304 commissioned graduates who were not deferred were called to active duty upon completion of their internship. Also, 162 who had completed residency training were brought to active duty. In addition, 271 physicians voluntarily accepted commissions in the Air Force, and 150 physicians were commissioned through the special draft call placed by the Selective Service System in June 1961. The recall of reserve forces in the Berlin crisis created an unexpected need for additional physicians, and in September 1961 it was again necessary to request a special draft call. Consequently, an additional 173 physicians were commissioned through allocations to the Air Force and called to duty during January to June 1962.

Career incentive programs continued to offer training to exceptional young people who desired careers in the Medical Service. The 318 individuals selected during the year included senior medical students, military interns, civilian interns, dental interns, medical specialists, and students of allied sciences. In addition, there were 51 commissioned nurses in training to become anesthetists.

The Medical Service offered opportunity for career improvement to its officers in the form of graduate training. At the end of June 1962 the Air Force was sponsoring 296 medical officers in specialty training leading to board certification.

Air Force Hospitals

The high standards of USAF hospitals were reflected in the progress of the accreditation program. As of June 1962 the American Hospital Association had accredited 96 hospitals, 79 in the United States.

The nine new medical facilities completed during the year included two composite medical facilities (hospitals with special clinics or services) and two Class A dispensaries (up to 25 beds). In June 1962 the USAF Medical Service was managing 177 fixed in-patient facilities (2 more than last year), containing 11,531 beds (470 fewer than last year). Of these facilities, 128 were hospitals and 49 were Class A dispensaries. There were 113 facilities with 8,617 beds in

the United States (excluding Alaska and Hawaii). The Dental Service operated 486 fixed dental facilities and 24 trailer-mounted clinics.

Medical facilities still under construction included seven hospitals (six with dental clinics), three separate dental clinics, two dispensaries, and seven buildings at the School of Aerospace Medicine.

Air Force medical facilities cared for a daily average of 4,132 USAF active-duty bed patients—or 83 percent of the total daily average of 4,977 hospitalized. The remaining USAF patients were cared for in facilities operated by the other Services or in civilian hospitals. This exchange between Services is beneficial both economically and professionally.

The care of USAF active duty patients made up less than half of the workload at USAF hospitals. The daily average of 4,132 USAF bed patients was 47.7 percent of the total daily average of 8,668 bed patients in USAF hospitals. Nonmilitary patients, mostly dependents, made up 47.9 percent of the workload, and patients of other military Services made up 4.4 percent.

Under certain circumstances, dependents were also eligible for treatment by civilian physicians and in civilian hospitals. In this Medicare program, the Air Force obligated \$144.8 million between December 1956 and June 30, 1962—\$23.6 million during fiscal year 1962. For this year, the average cost per physician's claim was \$80 compared to \$78 the previous year. The average cost per hospital claim rose sharply from \$115 in fiscal year 1961 to \$146.

Veterinary Service

Food inspections by the Air Force Veterinary Service for all military Services on a joint utilization basis became increasingly important. During fiscal year 1962 almost half of the inspections were for the Defense Subsistence Supply Center under its central procurement program. The Department of Defense approved the assignment of additional USAF veterinarians to designated U.S. Marine Corps installations.

The Air Force Veterinary Service continued to support aerospace medical research. It was a basic responsibility of veterinary officers to insure that all animals used were normal and healthy and to evaluate changes in the animals during research operations.

Aeromedical Evacuation

Aeromedical evacuation entered the jet age when C-135 jet aircraft succeeded piston-type aircraft for flights between the United States and both the Atlantic and Pacific areas. The speed and range of

jets should reduce the number of holding facilities, reduce crew requirements where staging is necessary, and bring a critically ill patient from any place in the world to medical specialty centers within hours.

The new service began in the Atlantic area on October 4, 1961, when the first plane took off from Rhein-Main, Germany, for McGuire AFB, N.J., with 44 patients. The flight time for scheduled bi-weekly flights was reduced from 24 hours, including ground time in the Azores, to 9½ hours nonstop. The inaugural flight in the Pacific area, on May 1, 1962, was nonstop from Yokota Air Base, Japan, to Travis AFB, Calif., with 37 patients aboard. Flying the Pacific in less than 9½ hours, the nonstop jet service reduced flying time for patients by approximately 15 hours, not counting former stopovers.

The Air Force planned for a modern, high-performance aircraft with increased speed and range but similar interior features to replace the C-131A for domestic aeromedical evacuation in the 1965-70 period. Also, it continued to seek replacements for the older C-47's and C-54's still used in aeromedical evacuation.

Aerospace Medicine

USAF aerospace medicine was concerned with developments related to specialty care, crew effectiveness, pressure suit equipment and training, ejection seat training, preventive and occupational medicine, and cooperation with the air medical services of the other American republics. The Surgeon General sponsored the first USAF-Latin American Medical Conference on March 25-28, 1962, at Albrook AFB, Canal Zone. Attending were 37 Latin American conferees from 15 Latin American nations. This conference helped to develop the air medical services of the participating nations as well as to strengthen inter-American friendship.

USAF physicians provided medical support for NASA's Project MERCURY. They served as aeromedical monitors in the unmanned simulator space flight, the chimpanzee orbital flight, and the first manned space flights. They were on duty at the tracking stations in Bermuda, Cape Canaveral, Canary Islands, and aboard ships.

During the year the Medical Service operated 41 physiological training facilities, all equipped with low-pressure chambers for basic and refresher training. Seventeen had auxiliary chambers for pressure suit training; 16 had ejection seat trainers. Of 39 units active at the close of this period, 4 were located outside the United States—in Japan, Okinawa, Germany, and Panama. The units, manned by an average of 96 officers and 585 airmen, trained 61,171 persons during this year.

Aerospace Medical Research

In fiscal year 1962 the Air Force consolidated its principal aerospace medical research laboratories under the Air Force Systems Command (AFSC) and placed them under the jurisdiction of the Aerospace Medical Division, with headquarters at Brooks AFB, Tex. The USAF Aerospace Medical Center, formerly at that base, was abolished. The principal laboratories consolidated under the Aerospace Medical Division were the USAF School of Aerospace Medicine, Brooks AFB; the Aeromedical Field Laboratory, Holloman AFB, N. Mex.; the Arctic Aeromedical Laboratory, Fort Jonathan Wainwright, Alaska; and the Aerospace Medical Laboratory, Wright-Patterson AFB, Ohio. Physicians and scientists also made advances in aerospace medical research at the Air Force Flight Test Center at Edwards AFB, Calif., also under AFSC.

The USAF School of Aerospace Medicine continued, through in-house and contractual research, the study of a wide range of physiological, psychological, and technological problems involved in aerospace flight. These studies considerably advanced medical knowledge concerning the ability of many drugs and chemicals to prevent or heal injury from different kinds of radiation.

The Arctic Aeromedical Laboratory developed an experimental model of a new system for maintaining a satisfactory space cabin atmosphere. Under this system, the direct rays of the sun would convert exhaled carbon dioxide into oxygen through algae, instead of using artificial light. If successfully developed, this system would reduce requirements for power, making space flights of indefinite duration more feasible.

At Holloman AFB, N. Mex., the Aeromedical Field Laboratory continued to float balloons for studies of radiation in the upper atmosphere. It also analyzed the effects of real and simulated space flight, launching, and reentry upon chimpanzees.

At the Air Force Flight Test Center, medical scientists evaluated tests by telemetry of the physiological effects of flying in the X-15 research aircraft while wearing a new type of full-pressure suit. Among other advantages, the new suit, designated the A/P 22S-2, carried a considerably improved telemetric system that provided more reliable physiological data to medical observers.

The Aerospace Medical Laboratory accomplished a wide range of research and development into problems of weightlessness, the effects of prolonged confinement, methods of training space crews, and the support of life in interplanetary space.

Chaplains

To provide spiritual guidance for the reserve callup in the fall of 1961, 32 Air National Guard chaplains were called to active duty with their units. Five ANG chaplains chose a career in the Air Force and were included in the total of 1,125 chaplains on active duty on June 30, 1962.

The Office of the Chief of Air Force Chaplains conducted a series of Catholic and Protestant preaching missions for USAF families living in Europe, Bermuda, the Azores, Puerto Rico, and the Caribbean. Torah convocations were conducted for Jewish personnel in Europe and the United Kingdom.

During fiscal year 1962 there were 678 religious facilities at USAF installations, 440 in the United States, and 238 overseas. The total included 378 chapels and 300 chapel annexes. Funds were appropriated for construction of 7 new chapels, 10 chapel annexes, and several modifications at an estimated cost of \$4 million.

Judge Advocate General

The retention of young officer lawyers, serving a 3-year obligated tour, continued to be a problem. JAG lost 135 officers during the fiscal year and gained 252 new ones. As of June 30, 1962, there were 1,390 officers compared to 1,273 a year earlier.

During fiscal year 1962 the Boards of Review rendered decisions on 969 court-martial cases. The Claims Division received or reopened 1,314 claims amounting to more than \$22.4 million and closed 1,293 claims amounting to more than \$3.4 million. Claims on hand at the end of the year numbered 361, amounting to almost \$22.5 million.

The Tax and Litigation Division received a total of 629 cases and closed 553 cases. There were 1,374 cases on hand as of June 30, 1962.

VI. *Installations*

The largest share of new USAF construction funds was spent on ICBM missile installations. It was also necessary to disperse, maintain, and improve air bases, since aircraft forces continue to provide the bulk of the USAF military capability for both general and limited war.

Appropriation Programs

For fiscal year 1962 the Air Force requested \$578 million in new obligational authority for military construction under three appropriations—the Regular Air Force, the Air Force Reserve, and the Air National Guard. Congress authorized construction amounting to \$502 million—\$478 million for the Regular Air Force, \$5 million for the AFR, and \$19 million for the ANG. Appropriations totaled \$521 million—\$498 million for the Regular Air Force, \$5 million for the AFR, and \$18 million for the ANG. With the addition of \$2 million in reimbursements, \$27 million in transfers, and a carryover of \$453 million, the Air Force had \$1,003 million available for construction in fiscal year 1962.

New Construction

Contract awards for new construction totaled \$848 million, of which approximately \$600 million went to support the missile and space programs. Construction projects valued at \$1.41 billion, exclusive of family housing, were completed during the year, double the monthly average of construction completed during fiscal year 1961. On June 30, 1962, projects worth \$1.4 billion were under construction, with the value of the work in place at these projects totaling \$1 billion.

Strategic forces received substantial support. During the fiscal year \$254.3 million in construction contracts were awarded for the ICBM program. Only \$2.4 million went to ATLAS since this weapon had already attained operational status and all 13 squadrons were accommodated on existing facilities. The TITAN program, which was well under way, received \$62.9 million in new contracts. Construction on all TITAN I sites was complete, and work proceeded satisfactorily on TITAN II facilities. The MINUTEMAN program, scheduled to have its entire inventory placed in underground

silos, was allocated \$189 million. Construction began on MINUTEMAN sites at Ellsworth AFB, S. Dak., Minot AFB, N. Dak., and Whiteman AFB, Mo. Contract awards for improving SAC bomber bases totaled \$30.3 million, and work was 77 percent complete. In addition, \$1.8 million was contracted for HOUND DOG missile facilities at several SAC bases. No construction was started on any new major air bases during fiscal year 1962. As a result of the Berlin crisis in July 1961, four Air Force bases scheduled to be closed—Laughlin, Tex.; MacDill, Fla.; Donaldson, S.C.; and Chennault, La.—were retained on active status for an indefinite period to prolong the use of B-47 bombers.

The Air Force awarded approximately \$16.5 million for fabrication, modification, and additions at launch complexes, tracking and telegraphy stations, photoprocessing laboratories, and development control centers in direct support of the space program. This figure also included work on radar stations along the Atlantic Missile Range and on facilities at the Air Force Missile Test Center. An additional \$7.3 million was placed under contract for construction work in general support of both the missile and space programs.

Defense systems received continuing emphasis. Construction was essentially complete on the BMEWS site at Thule, Greenland. Construction at Clear, Alaska, was completed on July 1, 1961. The third site at Fylingdales, England, was more than two-thirds complete by the end of the fiscal year. As of June 30, 1962, the Air Force estimated that construction cost for the entire BMEWS project would be \$168.3 million.

The radar improvement program, authorizing the construction of 115 radar towers, was accelerated by contracts for \$10 million, bringing the total invested in this project to \$76 million. By June, 84 towers were completed and 31 under contract. Construction of the combat center for SAGE operations at Hamilton AFB, Calif., was 98 percent completed, at an estimated cost of \$275,000. The ground control intercept system was provided \$13 million for the construction of fallout shelters and radiation shielding for operational facilities at certain aircraft control and warning (AC&W) stations. This program was subsequently modified to conform to the new backup interceptor control program. In June a revised design was 70 percent completed, with a few items placed under contract.

Construction for the BOMARC IM-99B was completed at Otis AFB, Mass., McGuire AFB, N.J., and Niagara Falls Municipal Airport, N.Y., and installation of equipment was under way in June. The IM-99A construction program completed in 1959 had cost \$44.5 million, while IM-99B facilities were expected to cost \$36.7 million,

bringing the total construction cost for eight BOMARC squadrons in the United States to \$81.2 million.

Excavation of the NORAD Combat Operations Center (COC) at Cheyenne Mountain, Colorado Springs, Colo., began in May 1961. Completion was originally scheduled for May 1962, but the project was expanded in November 1961 to include the colocation of the Defense Area Communications Control Center with the NORAD COC. The size of the excavation was increased from 154,500 to 170,500 square feet. Excavation was approximately 82 percent complete in June 1962, and design for the structure was 60 percent finished. Construction was scheduled to be completed in December 1962.

Except for the chapel, all facilities at the Air Force Academy were accepted and in use. Minor corrective work to complete the chapel is now being carried out.

Damage to public roads during construction of USAF ICBM facilities caused local authorities considerable financial loss in the past. Repair of damages is basically a responsibility of the contractors; however, in certain cases the Fulbright amendment to the Federal Aid Highway Act of 1961 authorized the use of appropriated funds to repair damage caused to highways by the operation of vehicles and equipment in construction at ballistic missile sites.

Under the Air Force Reserve recovery program, Ready Reservists would establish dispersed, safe sites for USAF aircraft returning from missions in the initial phase of global war. Approximately 200 airports were named for use as reserve recovery sites, and the Air Force issued 156 real estate directives for the lease of 114.38 acres of land and 515,324 square feet of building space at these airports at a cost of \$209,800 per year.

On June 30, 1962, the Air Force was using 238 major installations. These fell into six main types:

<i>Type</i>	<i>United States</i>	<i>Over-seas</i>	<i>Total</i>
Operational -----	79	61	140
Operational support:			
Flying -----	6	6	12
Nonflying -----	11	4	15
Training -----	42	0	42
Research and test -----	9	0	9
Logistical -----	11	1	12
Non-USAF (Foreign) -----	0	8	8
Total -----	158	80	238

Family Housing

The Air Force continued to give a high priority to adequate housing for its families. The Capehart-Rains (Title VIII) program, which

expires in October 1962, provided the greatest number of housing units. During fiscal year 1962, 5,691 units were accepted, bringing the total to 54,896. With acceptance of 5,538 units now under construction, the program will be completed at a cost of more than \$1 billion. Under the Wherry rehabilitation and improvement program, 26,438 units were completed by June, with 8,520 still under construction. The value of this entire program is approximately \$103.5 million.

There are geographic areas where it is impractical to erect permanent buildings to house military families, since they might live at these sites for only a short time. This problem became acute with the introduction of isolated missile launching sites and AC&W stations. The Air Force developed a "movable" house that is conventional in appearance but can be separated into segments and transported on a flat-bed trailer or railroad car. A pilot project to supply 135 units, or 27 to each of five AC&W sites, was completed in March 1962 at a cost of approximately \$2.1 million.

The Air Force accepted only 27 housing units built with appropriated funds during the year, but awarded contracts for an additional 708 units at a cost of \$11.5 million. It also contracted for 65 bachelor officer quarters of a residential type—four-bedroom, two-bath units—at a total cost of \$1.6 million.

Base Maintenance

The Air Force added new facilities valued at \$790.3 million to its real estate inventory, raising the total initial cost of the inventory to almost \$15 billion. Operating and maintaining these facilities is costly—\$843.5 million in fiscal year 1962—and requires constant study to determine new and more efficient methods of operation. It is estimated, for example, that losses due to corrosion of utilities cost the Air Force \$12 million annually. During 1962 the Air Force inaugurated a study of this subject in order to define problems, review existing programs for possible revision or modernization, determine whether new procedures were required, and formulate a sound comprehensive over-all program. This program is expected to save \$5 million to \$6 million annually. The Air Force contracted for approximately \$50.7 million in maintenance work and \$68.4 million for repairs and improvements during the year.

During this period, USAF fire departments responded to 3,782 calls. The loss to the Air Force in real property and materiel amounted to slightly more than \$7 million. In November 1961, two fires at Wright-Patterson AFB, Ohio, accounted for more than half of this total, destroying the headquarters annex and three other administration buildings. Two civilian firefighters lost their lives.

USAF fire-protection units responded to 419 aircraft fire and rescue incidents in which the value of the aircraft was \$702 million. Losses totaled \$237 million—\$213.7 million the result of impact and \$23.3 million by fire.

VII. Research and Development

USAF programs in space technology dominated Air Force research and development during fiscal year 1962. In May 1961, President Kennedy had established as a national goal the landing of a manned spacecraft on the moon within this decade. The decision stimulated all aspects of space technology. On August 24, 1961, Cape Canaveral, Fla., was selected as the major launch site for the Manned Lunar Landing Program (MLLP). The National Aeronautics and Space Administration (NASA) was named to supervise the program and to seek 80,000 acres of land in the vicinity of the Cape to accommodate launch pads and supporting facilities. The Air Force was designated as agent for NASA in masterplanning of the site and in arranging for construction.

On October 2, 1961, the Deputy Secretary of Defense clarified the responsibilities and relationships within the DOD and between the DOD and NASA in the matter of their joint participation in the Manned Lunar Landing Program. Within the Air Force, the Space Systems Staff Office, Directorate of Systems Acquisition, was designated as office of primary interest in April 1962. In July, the Deputy Chief of Staff, Research and Technology, assumed this role.

On May 1, 1962, a Deputy Commander for Manned Spaceflight was established in AFSC. He was assigned to duty at NASA and charged with responsibility at the operating and management levels for Air Force participation in the manned space program. Technological support of the NASA program not only contributed to the scientific exploration of space but insured that advancing technology could be quickly applied to military needs.

For fiscal year 1962, Congress appropriated \$2.403 billion for USAF research, development, test, and evaluation, an increase of \$850 million over the previous period. The increase included \$220 million for the XB-70 program, previously funded from the procurement appropriation. By June 30, 1962, the total rose to \$2.53 billion as a result of transfers from the Department of Defense emergency fund and from other appropriations. In June 1962, \$328.7 million of this total was placed in reserve to be obligated in coming fiscal years.

Within the Air Staff, a major reorganization was completed in July 1961 to accommodate the realignment of research and logistic

functions in the major air commands which had occurred in April 1961.

Staff responsibility for development, procurement, and logistic support of aircraft, missile, space, and electronic systems was placed in one office—the Deputy Chief of Staff for Systems and Logistics. Research, advanced technology, studies requirements, and development planning were placed in another office—the Deputy Chief of Staff for Research and Technology.

Weapon Development

Strategic Systems

The Air Force proposed in January 1962 that the XB-70 bomber program be reoriented to include development of a reconnaissance/strike weapon system (RS-70). In March, the program was limited to three prototype aircraft, and OSD and the Air Force began a new large-scale study of the RS-70. Meanwhile, assembly of the first XB-70 had begun in January 1962, initial engine deliveries were made in April, and bombing-navigation equipment tests begun in May.

Silo tests of the SM-80 MINUTEMAN, beginning in November 1961, demonstrated the design integrity of this missile. Of 16 firings completed by June 30, 1962, all but 2 were successful. In December 1961 the Air Force terminated development of the mobile version to obtain more rapidly and inexpensively a significant increase in the total number of missiles in hardened sites. On April 12, 1962, the first assembly-line MINUTEMAN ICBM was completed at Air Force Plant 77 in Utah. Missile stages and other hardware are manufactured in Utah, Washington, and California. In May 1962, research and development began on an improved MINUTEMAN with greater range, payload, and accuracy.

On August 8, 1961, an ATLAS-F missile was fired from Cape Canaveral for the first time. It carried a MINUTEMAN reentry vehicle that was dropped into the splash net off Ascension Island. The "F" missile contains special fuel valves to permit long-term storage of liquid fuels and other improvements designed to permit a shortened countdown. The "F" is the only ATLAS model that will be placed in underground hardened silos.

On October 2, 1961, an ATLAS-E ICBM, bristling with bonus experiments which made it a virtual flying laboratory, streaked 5,000 miles downrange from Cape Canaveral in a successful flight. A capsule recovered by an ocean range vessel contained data on experiments such as the first flight trial of a guidance system for the CENTAUR

space rocket, spaceborne nuclear power units, radiation sensors, and a nose cone built for the MINUTEMAN ballistic missile.

On December 1, 1961, an ATLAS was fired 5,000 miles downrange from Cape Canaveral and ejected 32 small capsules containing potassium, sodium, and other inflammables which erupted into colorful flares as the capsules hit the heat barrier of the atmosphere. The experiment was designed to develop safe containers for nuclear power units to be carried in future satellites and spaceships. By studying the ionization trails created by the flares, scientists hoped to learn about how radioactive material disperses in the atmosphere.

On December 12, 1961, a new model "quick-firing" ATLAS carrying a package of 28 dummy atomic fuel cores was sent 5,000 miles downrange from Cape Canaveral. The test cores made of sodium, potassium, rubidium, and cesium were exposed to atmosphere reentry to obtain information for use in building satellite nuclear generators.

The SM-68 TITAN ICBM made considerable progress during the year. On October 6, 1961, a TITAN ICBM, with an inertial-guidance system featuring a technique that enabled it to "memorize" the path to several targets, was launched 5,000 miles downrange from Cape Canaveral. In an operational situation, the firing officer could select one of these targets and set the advanced TITAN II guidance system.

The same day, another TITAN was lowered into a 165-foot-deep hardened ICBM silo at an underground site 15 miles east of Denver—the first protected ICBM site of its kind in the U.S.

On November 21, 1961, the first test-firing of a TITAN was made by an Air Force "blue suit" crew of the 6555th Aerospace Test Wing at Cape Canaveral. USAF personnel were in charge of all phases of checkout and launch, including missile erection, stage-mating, loading countdown, and firing. The test missile, carrying an experimental target reentry vehicle to be used in NIKE-ZEUS tests in 1962, landed 5,000 miles downrange in the South Atlantic.

On December 13, 1961, the final TITAN I flight test missile landed on target 5,000 miles downrange from Cape Canaveral to mark the completion of the test-firing program. It concluded 35 successes in 47 launchings since 1959.

On May 4, 1962, a TITAN I ICBM was raised from its underground silo and fired into the Pacific Missile Range to become the one hundredth missile launched from Vandenberg AFB, Calif., since December 1958, including 21 THOR IRBMs, 32 ATLASs and 5 TITAN ICBMs, and 42 satellites.

In the TITAN II program, on December 28, 1961, a TITAN II ICBM was captive-fired at Denver, Colo. The airborne and ground equipment were subjected to simulated flight conditions and the test

achieved all objectives. On March 9, 1962, TITAN II was captive-fired at full first-stage thrust of 430,000 pounds for 20 seconds at Cape Canaveral preparatory to its maiden flight. It burns liquid fuels which create no flame. Instead, intensely hot gases are emitted from the combustion chamber. TITAN II, with a total thrust of 530,000 pounds, is planned as a booster to orbit a two-man Gemini capsule as well as a variety of other space missions. On March 16, 1962, on its maiden flight, TITAN II streaked 5,000 miles downrange from Cape Canaveral.

Defense Weapons

The Air Force continued to study highly advanced techniques for thwarting ballistic missile attacks. It also supported tests of the Army-developed NIKE-ZEUS antimissile missile, producing targets and placing them in designated areas at prescribed velocities and angles. On July 20, 1961, a TITAN was fired downrange from Cape Canaveral with a cargo of penetration devices, the first ever carried by this missile. The nose cone was parachuted into the South Atlantic and quickly retrieved by an ocean range vessel.

Development continued on the ASG-18 fire-control system and the GAR-9 missile in the USAF effort to obtain an advanced aircraft armament system for air defense. The ASG-18 demonstrated excellent long-range detection and automatic tracking capabilities, and a GAR-9 missile was successfully launched at a QF-80 target.

Tactical Weapons

On October 3, 1961, the Air Force was given responsibility and, on March 29, 1962, was authorized to proceed with a program definition phase on a mobile midrange ballistic missile (MMRBM) system, involving source selection of contractors to study the propulsion transportation, reentry, command and control, and guidance aspects of the system. The Air Force also assumed full responsibility for the JUPITER IRBM, transferred to it from the Army Ballistic Missile Agency.

The Air Force is developing a high-performance short takeoff and landing fighter, the F-111 (formerly the TFX), for joint use by the Navy and Air Force. In January 1962 two contractors were chosen to undertake final studies prior to source selection. Both contractors proposed the JTF-10A (TF-30) engine, and in March this engine was approved by DOD as the F-111 powerplant.

On December 29, 1961, the USAF terminated design studies for the RF-105D reconnaissance fighter and switched to a reconnaissance version of the Navy's F-4B (formerly F4H) to be designated RF-4C and to be built to meet Air Force tactical reconnaissance requirements.

On February 21, 1962, the Air Force and Navy entered into an agreement under which the Air Force was to procure 29 F-4B aircraft together with associated ground equipment and spares.

In June the Air Force validated a specific operational requirement for a new intratheater assault/troop carrier aircraft. The vertical short takeoff and landing (V/STOL) transport that is envisioned would represent an epoch-making increase in airlift support capability.

On June 29, 1962, USAF awarded a contract for two high-speed X-19 VTOL aircraft which will be used to explore VTOL characteristics on behalf of the tri-Service V/STOL transport development program. The X-19 is a twin-engine, tandem high-wing aircraft with four tilting propellers mounted in nacelles at the wing-tips and is designed to cover a range of speed from 0 (hovering) to 400 knots in conventional flight.

During this period the Air Force undertook development of tactical non-nuclear munitions that were specifically designed for limited war and counterinsurgency operations. They included aircraft flares, a small fire bomb, a small free-fall missile, target-marking munitions, and improved antipersonnel and antimateriel munitions. Under the guidance of the Department of Defense, the Air Force also joined in an increased research and development program for the exploitation of chemical and biological materiel.

Space Systems

In February 1962 the Department of Defense directed the military departments to assist NASA in achieving common civil and military space objectives. The Air Force was assigned responsibility for supporting specific NASA projects by handling research, development, test, and engineering of satellites, boosters, space probes, and associated systems.

In May, the Secretary of Defense realigned military efforts in the field of communication satellites. The Defense Communications Agency (DCA) would manage and integrate the entire system. The Air Force would develop the satellite vehicle (including the payload), the launch vehicle, and the ground-based tracking, telemetry, and control system. The Army would develop the ground communications system.

The Air Force cooperated closely with the Navy by furnishing complete booster services for a navigational satellite program. The Air Force continued to launch and recover satellites designed to gather data on research and engineering problems in the broad field of space technology. One of these satellites carried piggyback a 10-pound

OSCAR (orbiting satellite carrying amateur radio), designed and built by "ham" operators to investigate radio propagation phenomena. In orbit, the OSCAR satellite separated from its mother vehicle and its radio transmitter commenced operations. Amateur radio operators in this country and overseas participated in this contribution to improved space communications.

The space detection and tracking system (SPADATS) is designed to enable NORAD to detect, track, and catalog all objects orbiting the earth. In June 1962, a development contract was placed for a phased array radar or single sensor that would detect and track several thousand targets simultaneously, eliminating the need for an extensive network of tracking radars. A contract was also awarded in March 1962 for an optical surveillance sensor to detect targets out to a lunar range as compared with present sensors that are limited to about 2,000 miles.

In order to provide more powerful boosters for future space programs, the Secretary of Defense, in September 1961, requested that studies be undertaken of a standardized space launcher, the TITAN III. This system would consist of a modified TITAN II, a pair of strap-on solid-propellant motors 120 inches in diameter, and an upper stage. During the fiscal year the TITAN III program underwent numerous technical appraisals and reviews. Current efforts on large solid motors were concentrated on the TITAN III and advanced technology programs. The Air Force proved the segmented motor concept and successfully fired motors up to 120 inches in diameter. In the spring of 1962, AFSC outlined a new program for a 156-inch segmented motor and a 260-inch monolithic motor.

For routine, reliable manned military operations in space, a pilot must be able to return from a wide range of earth orbits, maneuver within the atmosphere, and land at a suitable base. The Air Force, with the assistance of NASA, is developing an experimental delta-winged, multiorbit, piloted space glider, the X-20 Dyna-Soar. The X-20 development progressed satisfactorily, and the Air Force evaluated a mockup of the spacecraft in September without recommending major changes. During the fiscal year prototypes of most subsystems were produced and in various stages of testing. In December the Air Force decided to reduce time and costs by deleting a series of suborbital flights and proceeding directly to orbital flight and reentry testing, using the TITAN III space booster. On March 14, 1962, six candidates were selected by the USAF to fly the Dyna-Soar, including four Air Force and two NASA test pilots.

The Air Force continued to develop a satellite that would be placed in the same orbit as another satellite and be able to inspect it with a variety of sensors. The Air Force and NASA agreed to work closely

toward achieving the capability for rendezvous in space. The NASA Gemini program would use components and techniques developed in the USAF satellite programs and vice versa. On June 18, 1962, the Air Force announced tests of a device called SMU—"self-maneuvering unit"—that would enable an astronaut to leave his vehicle, move around, and work in space. The tests will be conducted in a KC-135 jet capable of simulating zero-gravity for 2 minutes at a time. The pack is designed to permit an astronaut to transfer from one spaceship to another or to move large sections of a spacecraft during assembly work. The SMU includes a complete life-support system for a 4-hour mission.

Foreign Developments

Under the Mutual Weapons Development Program, the Air Force provided technical supervision and support to 25 research and development projects conducted by seven European countries. There were also 130 agreements for the exchange of data with nine European nations. Only projects to which financially able NATO nations contribute funds are eligible for U.S. support.

In NATO multilateral programs, contractor research and development competition was under way for a V/STOL reconnaissance/strike aircraft and a V/STOL transport. The Air Force also concentrated on the air-to-air and advanced air-to-surface programs.

Supporting Developments

Transports

In August the Air Force selected contractors to develop five tilt-wing XC-142 transports. The purpose of this tri-Service program was to evaluate the operational suitability of a V/STOL transport. The program, under USAF management, remained on schedule during the fiscal year.

An airlift logistical system that permits rapid response during an emergency is a prerequisite to modern USAF operations. To overcome the limitations of its 8- to 10-year-old cargo planes, the Air Force initiated the C-141 program. This plane is designed to carry 31,000 pounds 5,500 nautical miles at a speed of more than 440 knots or, on short missions, about 70,000 pounds 1,000 nautical miles. Development of the C-141 remained on schedule, and the first of a series of mockups was reviewed in January. On April 18, 1962, C-141 jet transport was officially designated Starlifter by the U.S. Air Force.

Command and Control

The Air Force is developing an intelligence data-handling system to apply modern technology in the use of information, theory, techniques, and equipment. Since military intelligence is derived from the

careful scrutiny by skilled analysts of a large volume of data, this system will be an important aid to USAF commanders in decision-making. Significant advances by SAC in the use of computers for handling intelligence data will be adopted by other USAF commands and DIA.

SAC's command and control system has progressed to the point of detailed planning for installation and checkout. Development of equipment is essentially complete and production is under way. The ability to exercise effective command and control from aircraft has been improved.

Between December 26, 1961, and January 30, 1962, six "Talking Bird" communication packages were delivered to the Air Force Communications Service at Tinker AFB, Okla. Each package contained all the equipment necessary to establish a communications center in any remote area rolled into a C-130 for rapid transport. Two were assigned to USAFE, two to the Pacific, and two to the Zone of Interior (ZI).

Orderly progress on the construction of the NORAD Combat Operations Center continued. A test site is being set up near the hardened center where system designs will be verified and equipment checked out before installation.

The Air Force is responsible for developing and operating the nuclear detonation detection and reporting system by which Government agencies will be able to evaluate fallout and assess damage from nuclear detonations occurring within North America. In February a contract for a prototype system was awarded.

Test Instrumentation

Since precise evaluation of the performance of ICBMs and satellites is necessary, the Air Force developed techniques and equipment for observing, measuring, and evaluating research and development tests, primarily at the Atlantic Missile Range. The space age has required an expansion of the range area into the Indian Ocean. To provide for this greater coverage, the Air Force is converting two vessels to advanced-range instrumentation ships. Tracking and measurement radars, telemetry, and other equipment will be installed.

The Air Force is installing missile trajectory measurement systems at the Atlantic Missile Range to satisfy the need for an extremely accurate check of MINUTEMAN flights.

Advanced Technology

Advanced technology programs grew out of one or more research projects. Many of the advanced technology programs dealt with space.

Avionics

Present inertial-guidance systems for ballistic missiles and spacecraft require precise knowledge of geophysical launch locations and precise alignment before launching. Since supporting equipment is therefore expensive and complex, it would be highly desirable to have a guidance system not based on these requirements. The Air Force is studying concepts and specifications for a miniature stellar inertial-guidance system that would be contained within the reentry portion of the vehicle. Such a system could also offer the advantage of mid-course guidance that would eliminate errors arising during the boost stage.

Reconnaissance/strike aircraft, both tactical and strategic, need a variety of sensors to locate and identify surface targets with such speed and certainty that the planes could immediately launch their weapons. In December 1961 the Secretary of Defense approved funds for a limited war "package," and by June the Air Force had contracted for sensors, displays, and allied equipment.

One of the most significant developments in the field of electronics is light amplification by the stimulated emission of radiation (LASER). A device capable of generating or amplifying pure red or single-frequency light would offer this Nation important strategic and technical advantages for aerospace vehicles. LASER will be tested initially within the earth's atmosphere and also in a facility that simulates the environment of space.

On May 9, 1962, Massachusetts Institute of Technology scientists under USAF sponsorship successfully hit the moon with optical MASER rays on 13 separate occasions.

On September 18, 1961, the world's largest radome was completed on Haystack Hill, Tyngsboro, Mass., by the Electronic Systems Division, AFSC. The antenna is 120 feet wide and is the most precise structure of its type, featuring a tolerance of .075 inch peak surface deviation. It will be in operation by the end of fiscal year 1963 as a test bed for ground-based high-capacity satellite relay systems.

On April 24, 1962, the first transmission of television pictures by way of an orbiting satellite was accomplished by the Air Force. The transmitting waves soared 1,000 miles from an MIT Lincoln Laboratory field station at Camp Parks, Calif., to ECHO I, a balloon which has been orbiting the earth for 2 years; thence to Millstone Hill, Westford, Mass. The signals traveled an estimated 3,000 to 4,000 miles in order to make their 2,700-mile transcontinental jump. Success was attained under difficult circumstances because ECHO I had partly deflated and its surface had become wrinkled due to continuous me-

teoric bombardment which reduced its reflection capabilities. The experiment was successfully repeated on April 26.

Propulsion

New propulsion devices indicated significant potentialities for a single stage-to-orbit aerospace plane. A ramjet engine, using liquid hydrogen as fuel, would liquefy and store oxygen during atmospheric flight and then use it for rocket propulsion to get the aerospace plane into orbit. Encouraging tests indicated the possibility of a propulsion system that would reduce the great costs of space operations. On May 26, 1962, the F-1 liquid-fueled rocket engine was fired at full power for the first time at Edwards AFB, Calif., and attained a thrust in excess of 1.5 million pounds in a test lasting 2½ minutes. The F-1, the most powerful rocket engine developed in the West to reach advance test-firing, will send SATURN in flights to the moon and other space destinations.

In June the Air Force and NASA began a cooperative effort in this field.

On December 9, 1961, a giant solid-fueled rocket engine weighing 70 tons, 40 feet high (bolted in four segments), and 8 feet in diameter was test-fired at Sunnyvale, Calif., under an Air Force contract. The engine generated nearly 500,000 pounds of thrust before burnout.

In October 1961, tests of the Tory IIA nuclear reactor proved so successful that planned tests of the Tory IIB were dropped. Efforts were directed to the Tory IIC, which will have system components that will be more closely designed for flight. The nuclear reactor is a critical element of the Pluto program, a joint effort of the Atomic Energy Commission and the Air Force aiming at the development of a nuclear ramjet.

Work was under way during the fiscal year on an experimental model of an ion engine. Analysis indicated that an ion engine would be useful for those space operations requiring low propulsive forces, such as minor orbit corrections, transfers in orbit, and counteracting small orbital drags.

Research Vehicles

The X-15 research aircraft continued to set new records for speed and altitude during fiscal year 1962, achieving a speed of 4,159 miles per hour and an altitude of 246,700 feet. The Air Force, Navy, and NASA have agreed on future flights to obtain new data on heating, hypersonic aerodynamics, and operational and control problems.

On November 28, 1961, President Kennedy awarded the Harmon International Trophy for Aviators to X-15 pilots Joe Walker, Scott Crossfield, and Maj. Robert M. White, USAF.

Research

The Air Force initiated a program for designing, analyzing, and joining brittle, refractory nonmetallic materials. Since oxide ceramics, carbides, glass, and plastics have superior chemical stability and electrical properties, they may solve the extreme temperature problems associated with aerospace structures. In the past, scientists had attempted to change brittle nonmetallic substances to make them more ductile. They now have tried to use the material as it is and design around its nonductile characteristics.

Brazed honeycomb cores using molybdenum, niobium, and their alloys promised to provide a favorable strength-to-weight ratio to withstand temperatures of 2500° F. The Air Force awarded a contract for the development of fabrication and design procedures for sandwich components of these honeycomb cores.

Many studies were under way to determine the aerodynamics, structure, and control of the Sortie vehicle, which would obtain data at superorbital velocities to verify theories and provide design information for future USAF systems. Another concept, now in its early stages, would use a manned superorbital vehicle with both hypersonic speed in flight and low speed in landing.

The Asset program will require flight tests to determine the best structures, designs, and configurations for manned and unmanned hypersonic vehicles that must withstand extreme heat, investigate the magnitude and distribution of airloads and heat acting on these vehicles, and determine the accuracy of theories of thermoelasticity. Six vehicles are planned to be launched with THOR-type boosters. The Air Force completed wind tunnel tests and a mockup inspection in January.

Design has been completed on a high-temperature turbine that is expected to improve the efficiency of jet engines. It is designed to run at 2500° F. continuously and in 5-minute bursts at 2700° F. A lightweight version is in the initial stages of fabrication. These programs promise a regular jet engine with a thrust-to-weight ratio of 12 to 1 and a lifting jet engine with a thrust-to-weight ratio of 25 to 1.

In advancing the technology of energy conversion and power transmission, the Air Force stressed lightweight, reliable, power equipment for military space vehicles and extraterrestrial sites. It investigated static and dynamic methods and components for converting energy from all possible sources to useful electric, mechanical, hydraulic, and pneumatic power. Various approaches were taken to the space power unit reactor (SPUR) and the advanced solar turboelectric concept (ASTEC). Ballistic tests of turbomechanical systems were conducted as well as orbital tests of fuel cells. Other

items were evaluated under simulated space conditions. The AEC initiated the SNAP 50 reactor experiment to support SPUR. USAF research in flight vehicle power was closely coordinated with the NASA program.

On February 25, 1962, the Air Force's first portable nuclear powerplant went critical (self-sustained chain reaction). PM-1 (Portable Medium Plant No. 1) is located at Sundance, Wyo., and will provide the prime source of electrical power (1,000 kw.) and space heat (2,000 kw.) to a radar squadron's technical site in the Warren Peak area of Wyoming. PM-1 is under AEC control for a 6-month testing period after which it will become the first fully operational ground nuclear powerplant in the USAF inventory.

The Air Force continued to develop exotic inertial-guidance components to replace conventional items. Cryogenic gyros and accelerometers were investigated in the effort to substantially reduce system errors, size, weight, and power consumption. Experiments are also being performed with cryogenic computer circuitry to provide completely compatible and reliable inertial guidance.

During March 1962 the Air Force conducted Project STARGAZER over California using unmanned 400-foot high plastic balloons launched to altitudes between 70,000 and 88,000 feet. The test was intended ultimately to launch two men and a specially stabilized telescope to make astronomical observations. The tests were conducted under auspices of the USAF Cambridge Research Laboratory.

In May 1962, an Air Force superpressure balloon made a record-breaking 19-day flight at a constant altitude of 68,000 feet, in another test conducted by the Cambridge Research Laboratory. The balloon was launched from Kindley AFB, Bermuda, and landed by radio command in the Pacific, near Iwo Jima, 3,600 miles west of Hawaii, covering a total of 9,300 miles.

VIII. Procurement and Production of Materiel

Industrial Planning

The Air Force continued to modernize its industrial base. Funding for the expansion of industrial facilities during fiscal year 1962 was \$85.1 million as compared to \$65.4 million for the previous year. Of the 1962 funds, \$49.9 million supported the missile program, \$32 million the aircraft program, and the remaining \$3.2 million various other programs. Although missiles continued to receive the greatest amount of money, the percent allotted for aircraft increased in response to the need for additional weapons for limited war. In the 1963 budget, \$58.1 million was appropriated for industrial facilities, a reduction of about 32 percent. The bulk of this amount was to support aircraft and machine tool modernization.

It is neither economically sound nor in the national interest to retain production facilities operating at a fraction of their capacity. Most Government-owned plants built during World War II were no longer needed. The Air Force therefore continued to dispose of those operating below marginal levels. Department of Defense plants and equipment were utilized where economically feasible, but the Air Force made maximum use of privately owned facilities. At the end of fiscal year 1962 there were still 56 plants in the USAF inventory. Congress approved the disposal of 9 of 13 plants being processed for disposal; 42 plants were actively engaged in weapon system production and 1 plant was under construction. The Air Force renewed the lease on one heavy press plant.

During the year ending June 30, 1962, the number of machine tools in the USAF inventory had dropped from 75,612 valued at \$929 million, to 69,320, valued at \$857.9 million. The number of machine tools in actual use declined from 61,700 to 60,500.

The development of new production processes continued at a cost of approximately \$20 million. Projects under study included high-temperature aerospace structures, refractory metals, expandable space structures, materiel removal, and the production of solid propellants.

Procurement Policy

The USAF undertook to improve its procurement management of new weapon systems, support systems, replenishment spare parts, and contract services.

Where possible, regulations were recast to emphasize use of the incentive contract. This was done to motivate contractor management toward reduced cost, higher reliability, and timely deliveries. Incentive contracts held out greater rewards for excellence; greater penalties for failures.

However, the bulk of Air Force materiel still was not purchased by competitive bidding because of the nature of the items required. In many instances, newer technology overtakes specifications so rapidly that original bids become invalid. Consequently, if the forces of market competition do not apply when the Air Force buys a product or service, incentive contract arrangements must provide a substitute.

Competitive purchase in the procurement of replenishment spare parts was vigorously pursued in the Air Materiel Areas. By use of item screening, parts which could be bought competitively were identified. The system was extended from aeronautical spare parts to all replenishment items. Thus, at the close of the year, the use of competition had been expanded significantly.

The Air Force began surveys of its major contractors early in 1961 to assist them in improving management and control. Survey teams identified problems and recommended corrective actions. They placed particular emphasis on control and reduction of cost. Improved procedures resulting from these surveys were distributed throughout both the Air Force and the aerospace industry.

On May 26, 1961, President Kennedy established a Missile Site Labor Commission to handle construction disputes at missile sites and to make recommendations on uneconomical practices. The cooperation of labor, management, and Government resulted in an eminently successful first year. The time lost at missile and space sites fell to 1 man-day for each 1,100 man-days worked as compared to 1 man-day for each 96 man-days worked in the previous year. Of 105 instances of unreasonable labor practices referred to the commission, recommendations were made in 33. The remainder were covered either by policies or rulings on previous cases. USAF action to eliminate excessive overtime resulted in saving almost \$2 million, of which \$771,000 was attributable to the adoption of multiple shifts in place of overtime.

The Air Force also participated in an interdepartmental task force set up by Labor Secretary Arthur J. Goldberg in February 1962 to

study labor problems in the missile industry and to review wage levels and other sources of potential disagreement to forestall strikes.

Aircraft and Missile Production

During fiscal year 1962 the Air Force directed \$8.3 billion for new procurement of materiel—19.6 percent for new aircraft and spares, 34.4 percent for missiles and spares, and 46 percent for other items, such as modifications, industrial facilities, and components. Program changes permitted the Air Force to recoup \$1.08 billion during the fiscal year.

AIRCRAFT AND MISSILE PROCUREMENT (Millions of Dollars)

<i>Fiscal Year</i>	<i>Aircraft & Spares</i>	<i>Missiles & Spares</i>	<i>Other*</i>	<i>Total</i>
1960-----	3,067.2 (38%)	1,942.4 (24%)	3,038.5 (38%)	8,048.2 (100%)
1961-----	2,028.0 (23%)	2,997.8 (35%)	3,778.6 (42%)	8,804.4 (100%)
1962-----	1,635.7 (19.6%)	2,872.1 (34.4%)	3,821.8 (46.0%)	8,329.6 (100%)

*Modifications, facilities, components, etc.

The ballistic missile production program remained essentially on schedule, and no major problems were encountered. Progress on the MINUTEMAN was excellent. Procurement of ATLAS D missiles was completed in May 1962. Production of the GAM-77A HOUND DOG air-to-surface missile continued with only minor adjustments in programs and operational testing was under way in SAC operational squadrons. The Air Force received its last GAM-72A QUAIL decoy missile in June and continued flight-testing of the B version. It planned to begin modifying all A missiles to the later configuration early in fiscal year 1963. Substantial numbers of Navy-developed GAM-83 BULLPUPS were delivered to augment USAF limited war strength. The purchase of the F-4C (formerly F-110A) tactical fighter by the Air Force established a requirement for the Navy's SPARROW air-to-air missile. Production was on schedule on the IM-99B BOMARC interceptor missile, and the last will be delivered in fiscal year 1963. The final TM-76B MACE tactical missile was accepted in June, although some components and subsystems remain to be delivered.

There were no major aircraft production problems, and acceptances were 98.7 percent of the number scheduled. The downward trend in the number of new aircraft produced continued through fiscal year 1962.

The last B-52H was scheduled for delivery in September 1962 and the last B-58 the following month. Both aircraft were undergoing system-testing and flight-testing at the close of the fiscal year. No aircraft were scheduled to replace them in production; the XB-70 remained in the research and development phase.

The Air Force decided to modify the F-105D tactical fighter to correct certain defects, improve its safety characteristics, and increase its capability for carrying conventional bombs. In addition, it authorized procurement of a two-seat F version. Initial delivery of the F-104G was scheduled for July 1962 to satisfy the requirements of the Military Assistance Program (MAP).

A limited number of KC-135Bs and RC-135Bs were procured to support diversified SAC missions. Until the C-141A strategic transport becomes available, an interim program was in process to modernize the MATS fleet. MATS received 15 C-135As and 23 C-135Bs during this period. Delivery of the C-130B was on schedule with the 130th aircraft delivered in June. The first flight of the C-130E, which has greater range than the B version, took place in August 1961, and the Air Force accepted the first production model in April 1962.

The T-37B production rate of 4 per month met MAP requirements, and an initial 20 aircraft were delivered. T-38 deliveries numbered 10 per month, and the Air Force planned to produce this trainer for a number of years. At the end of the fiscal year, 63 T-39As had been delivered, with the remaining 80 scheduled at 5 per month through October 1963. HH-43 (formerly H-43) production was extended for another year to support the USAF rescue mission. On June 4, 1962, the CH-46B (formerly HX/H-2) long-range helicopter was selected by the Air Force for production. This vehicle is designed to carry a minimum of 5,000 pounds for 200 nautical miles or 2,400 pounds for 700 miles. The Air Force procured 6 light fixed-wing U-10's (formerly the L-28) for supporting missile sites and 14 U-10's for counterinsurgency warfare.

There were 3,548 aircraft engines produced in fiscal year 1962—a 25.8 percent increase over the 2,820 of last year. The number produced was 99 percent of the number scheduled. Aircraft engines in the USAF inventory were valued at \$6.5 billion.

Military Assistance Program

For the past 13 years, the USAF Military Assistance Program has helped friendly nations develop soundly equipped and well trained modern air forces. During fiscal year 1962, 43 of 51 countries qualified for grant aid materiel received assistance. Of the 87 countries eligible to buy equipment and services through Military Assistance Sales, 45

did so, plus the NATO Maintenance Supply Support Agency. Other international organizations, such as the Southeast Asia Treaty Organization (SEATO) and various United Nations agencies, also took part in the program.

The rising prosperity of our NATO allies diminished the scope of grant aid in Europe. To apportion costs more equitably, cost-sharing production programs were formulated whenever practicable. Full financial responsibility became the policy for the Federal Republic of Germany, but countries that were not as prosperous, such as Greece and Turkey, continued to receive grant aid. The Republic of Vietnam and adjacent areas received more assistance. A number of newly established independent states became eligible for military assistance, subject to the various Presidential determinations required by the Foreign Assistance Act of 1961.

Of the \$9.97 billion in the USAF MAP program for the past 13 years, \$8.9 billion (90 percent) was expended. This provided \$5.2 billion (58 percent) for NATO nations; \$1 billion for other nations in Europe, the Middle East, and Africa; \$2.2 billion for the Far East; \$0.2 billion for Western Hemisphere nations; and \$0.3 billion for programs not designated for a particular nation. Aircraft accounted for \$5.2 billion, missiles for \$0.5 billion, and other materiel and support for \$1.9 billion. The balance of \$1.3 billion represented services rendered, including training assistance.

The total number of aircraft shipped to MAP countries reached 14,048 by June 30, 1962. Of these, 9,884 (70.2 percent) were jets. These figures do not include aircraft assembled in MAP-recipient countries. MAP-supported aircraft flew about 850,000 hours during fiscal year 1962, with jets accounting for 60 percent. Allied air forces have a total of 229 MAP-equipped squadrons, 169 jet. Approximately 78 percent of the jet squadrons and 80 percent of the reciprocating-engine squadrons were combat ready. Most of the combat-ready forces were in NATO units, but combat-readiness rose substantially elsewhere, notably in Asia. The MAP missile program continued to play an important part in the foreign aid program.

On April 25, 1962, the F-5A (formerly N-156), a supersonic fighter, was chosen by the Department of Defense for use by selected countries under MAP. The twin-jet F-5A is similar to the Air Force T-38. It can exceed Mach 1.4 in level flight and carry over 5,000 pounds of external stores, weapons, or a combination of external fuel tanks. In May 1961 the F-5A was the first U.S. supersonic jet to take off and land on a sod field. Its armament will include bombs, guided air-to-ground missiles, gun pods, and air-to-air missiles such as the SIDEWINDER. The F-5A is specifically designed to meet the requirements of allied nations for an economical, multimission aircraft.

MAP training assistance, directed toward the proper maintenance and utilization of the equipment provided to recipients, has produced beneficial side effects. Personal contacts during training proved advantageous in the East-West ideological struggle. Thousands trained in the United States or abroad have created a reservoir of good will for America. USAF-trained technicians have contributed significantly to the civilian economies of their homelands. During the 13 years of grant aid, the Air Force trained 3,915 foreign pilots in this country and 7,257 in other flying specialties both here and abroad. More than 59,000 foreign nationals received technical training in USAF training courses.

IX. Logistic Services

Logistic support of Air Force worldwide operations during fiscal year 1962 relied more and more on automatic communication and data-processing equipment and procedures. These managerial tools were especially helpful in military and contract airlift operations to fill materiel requirements and to forestall accumulation of excessive stocks in supply pipelines and depots. The Air Force also used automatic equipment to modernize maintenance practices at base, depot, and contractor facilities in order to keep equipment and systems operating at their maximum.

Supply

The Air Force cooperated fully in promoting the objectives set forth by the Department of Defense when it established the Defense Supply Agency (DSA) in August 1961. The Air Force furnished highly qualified civilian and military personnel to the new organization, and it expected to reassign more than 6,700 civilians to DSA plus many military officers.

On January 1, 1962, the new DSA became operational and assumed command of seven commodity and service agencies. Dayton Air Force Depot, Ohio, was scheduled to become the single manager for electronic and electrical supplies under DSA cognizance.

To meet its commitment, the Air Force on December 27, 1961, established the Defense Electronics Supply Center at Gentile AFS, near Dayton, Ohio, to procure 1,000,000 separate common-use electronic items for the Army, Navy, and Air Force. This was particularly significant because electronic equipment was the first DSA-managed materiel that directly supported the combat systems of all the military Services.

By June 30, 1962, the Air Force had substantially installed the Communications Logistics Network (COMLOGNET), the first phase of AFDATACOM, a high-speed, fully automatic, digital system capable of handling large volumes of teletype, voice, and graphic data. The first of five switching centers was scheduled to become operational at Norton AFB, Calif., in September 1962 and the second at McClellan AFB, Calif., shortly thereafter. The remaining three—at Gen-

tile AFS, Ohio; Tinker AFB, Okla.; and Andrews AFB, Md.—were to be completed by December 1962.

In June, 173 USAF bases met the criteria for employing electronic data-processing equipment in inventory control. Use of this equipment proved both beneficial and encouraging at the 76 bases already equipped.

Project BIG DIVIDE—the worldwide identification and distribution of excessive aerospace ground equipment concluded in September 1961—revealed excess items worth \$54.6 million at many bases and a concurrent shortage of required items costing \$28.1 million at others. By redistributing excess equipment, the Air Force cut the reported shortage to only \$7.9 million and reduced the approved buying program by \$2.2 million. Moreover, 46,945 items of ground support equipment were returned to depot stocks for future use and 4,591 items declared excess to Air Force needs.

Based on these improved management systems and special reviews, USAF officials again reported a favorable downward trend in base stock inventories. Total line items stocked at Air Force bases fell from 6.29 million on January 1, 1961, to 6.17 million 1 year later. And the total dollar value of these stocks also dropped, from \$2.22 billion to \$1.88 billion. Similarly, the ratio of spares to installed aircraft engines remained satisfactory, although the value of these engines rose from \$6.2 billion on June 30, 1961, to \$6.5 billion a year later.

On September 7, 1961, the Air Force ordered consolidation of supply cataloguing conducted at 11 logistic centers into a single organization to function at Wright-Patterson AFB, Ohio.

Streamlining the management of USAF atomic logistic organizations was a noteworthy achievement. A wing headquarters and five group headquarters were eliminated and 900 manpower spaces were reassigned without reducing the USAF capability to carry out required atomic logistics.

On May 15, 1962, the Air Force Logistics Command announced the elimination of its last permanent Air Force overseas logistics facilities with the closing down of Air Materiel headquarters at Tachikawa, Japan, and Chateauroux, France.

The Air Force handled the urgent requirements growing out of the Berlin emergency and the buildup of conventional ammunition stockpiles without undue difficulty. The deployment of the ANG units to Europe presented special logistic problems since these units were not prepared for the rapid deployment expected of regular tactical units. Nevertheless, bases were quickly converted from standby

to operational status, and all necessary spare parts, droppable fuel tanks, and stocks of ammunition were made available.

During fiscal year 1962 the Air Force declared excess to its needs personal property (as distinct from real property) originally costing \$1.8 billion. It also disposed of property valued at \$2.09 billion, the second successive year that disposal exceeded accumulation. The excess and surplus property inventory dropped to \$745 million, with aircraft comprising about one-third of the total. Improved screening procedures permitted greater utilization of excess property through reissue, reclamation, and transfer to other Government agencies. Reclamation of spares and components from excess aircraft amounted to \$50 million, far less than last year because the Air Force retained excess flyable aircraft for possible use in the increasing conventional forces. Scrap and waste weighing 263,459 tons were sold for \$12.6 million, and sales of salvage and usable property amounted to \$18.0 million.

Maintenance

Maintenance of weapon and support systems accounted for about one-third of the Air Force's annual operating budget, a proportion which may increase due to the sophistication of new systems. Greater stresses will be placed on maintenance procedures and techniques, which require more highly skilled personnel, larger workloads, and rising costs.

A management tool in maintenance is electronic data-processing equipment. From data collected and analyzed, the Air Force isolated specific items that could be omitted during periodic inspections. More realistic replacement schedules for numerous system components were established. On July 1, 1961, the Air Force directed employment of electronic data-processing at all bases for all materiel with gratifying results. In one instance, regular inspection of KC-135 components needing maintenance reduced the number from 3,300 to 1,000 requiring periodic inspections. Application of these data reduced man-hours devoted to inspection from 80 to 30, and reduced required time for KC-135 600-hour major inspection from 9 to 2.5 days, eliminating completely all KC-135 depot inspections. Similar techniques deleted 2,000 components from B-52 periodic inspections, cutting required man-hours from 225 to 25, and the 600-hour inspection from 11 to 3.5 days. Inspection procedure savings on nine major weapon systems freed 4,390 man-years for work elsewhere.

These manpower savings were diverted to other areas of maintenance, primarily to the repair of many items formerly sent to USAF depots and contractors. Field and base maintenance shops repaired

almost 1,900 items that until this year had been repaired only at the depots. This procedure greatly improved base maintenance, kept more spares out of the pipeline, reduced transportation costs, and cut the time that items were unserviceable. Finally, there was a commensurate reduction in depot maintenance work, which was reflected in savings of \$44.1 million from the original budget. Projected future savings permitted the Air Force to request a smaller depot maintenance appropriation for fiscal year 1963.

The practice of replacing certain components at specified intervals also underwent drastic revision as a result of automatic data-processing. Normally, maintenance workers replaced items at regular intervals even though these items still functioned properly. Examination revealed, however, that the reliability and operational lifetime of many items exceeded manufacturers' estimates and earlier USAF experience. As a result replacement schedules for more than 1,250 missile, aircraft, and ground electronic items were abolished. These items will be replaced only if they fail or malfunction. The Air Force also extended the interval of replacement of another 176 items.

The Air Force divided its over-all depot maintenance workload about evenly between its own organizations and contractors. There was a slight shift of effort to the contractor in comparison with the last year.

Transportation

The Air Force used the MATS air fleet, commercial charter airlift, and regularly scheduled airlines to move men and supplies from domestic bases, depots, and factories to oversea bases.

Within the United States, LOGAIR, a fleet of 51 DC-6, C-46, and Argosy aircraft owned by five private companies, services 88 USAF bases under contract to the Air Force and provides off-line support for several Army installations. Top-priority supply flights kept weapon systems which were out of commission for parts to a minimum. Other LOGAIR flights terminated at MATS aerial ports of embarkation, where critical parts and equipment were quickly transferred for oversea shipment by MATS or 1 of about 15 commercial airlines under contract.

Deployment of 11 ANG squadrons and a tactical control group to Europe, starting in October 1961, necessitated the airlifting of 9,974 personnel and 2,792 tons of materiel by MATS, employing 335 C-118, C-121, C-124, and C-133 aircraft flights. In addition, approximately 28,600 measurement tons (M/T) of unit equipment were shipped by surface vessels. The deployment was carried out without mishap and completed on schedule with all materiel in place by the close of 1961.

In support of Joint Task Force 8, which conducted nuclear tests in the Pacific, MATS airlifted about 8,000 tons of cargo and 12,000 people to Hickam AFB, Hawaii, Christmas Island, and Johnston Island.

Bulk aviation fuel comprises about 90 percent of the tonnage shipped into air bases within the United States each year. Although consumption increased over the years, cost of fuel transportation per gallon decreased. In 1953 the Air Force transported 1.8 billion gallons at a cost of \$27.6 million; this year, 3.6 billion gallons were moved for \$28.2 million—a decrease of almost 50 percent per gallon. While several factors contributed to this decrease in cost, a principal reason was the expanding use of commercial pipelines. Commercial companies constructed spur lines, pumping stations, storage tanks, and other facilities at their own expense. At the close of the fiscal year, 34 major air bases—6 more than a year earlier—were being served by commercial pipelines. This service resulted in a recurring annual saving estimated at \$5.3 million and the use of about 2 million barrels of storage capacity. It also reduced the numbers of people, time, and paperwork required to receive shipments.

X. Management

In the Air Staff, the Deputy Chief of Staff, Systems and Logistics, was made responsible for development, procurement, and logistic support for aircraft, missile, space, and electronic systems. Under him were individual staff offices that managed high-priority systems such as ATLAS, TITAN, and MINUTEMAN during their critical periods. The Deputy Chief of Staff, Research and Technology, was responsible for research, advanced technology, and development planning, and coordinated with other Federal scientific agencies such as the AEC and NASA.

The establishment of DSA and DIA in August 1961 centralized management of selected activities common to all the Services. The creation of the new agencies considerably altered the scope of USAF operations in the two areas. It also necessitated assigning large numbers of USAF military and civilian personnel to duty with the newly established agencies.

Comptroller

Status Analysis

The presentation of the first Annual Executive Review to the Chief of Staff, USAF, in August 1961 marked a highly significant addition to the Air Force system of executive analysis. Under development since 1958, the system gives key civilian and military leaders recurring reviews of the capabilities of USAF forces throughout the world, the status of all major USAF programs, and the current problems requiring executive action. Based on the concept of management by exception, the system also sets major problems in perspective, thus providing a sound basis for assessment and appropriate action.

The executive analysis system includes the Annual Executive Review, the Air Force List of Near-Term Objectives, a monthly Executive Summary of highlights and problems in all mission areas, and intensive analyses of specific operational and support missions. A monthly Current Status Report summarizing major Air Force programs, also part of the system, is used as a standard reference by all Air Staff offices.

Data Systems

The Air Force established in the Air Staff a focal point to control the development of data systems and the acquisition of related elec-

tronic data-processing equipment. The Air Staff approves all system requirements and specifications, and arrangements are being made for the Electronic Systems Division of AFSC rather than the major commands to make selections among competitive equipments. This procedure gave equitable consideration to proposed equipment.

Financial Management

During fiscal year 1962, Congress and the Department of Defense intensified their interest in the reprogramming of appropriated funds. It is now necessary to consult with or advise the Congressional Committees on Armed Services and Appropriations about certain reprogramming actions. Improved procedures reduced by 18 percent the number of individual reprogramming actions processed during the fiscal year.

Accounting and Finance

The Air Force continued to revise the accounting system in order to provide only information that was needed and legally required. Many detailed types of expense accounts were eliminated, and a revised system of compressed accounting codes was introduced. Such changes permitted a significant reduction in the accounting workload.

Auditor General

The tremendous increase in the use of automated data-processing equipment led to revisions in auditing methods. In November 1961 the Auditor General published a guide for the audit of records maintained on the equipment. Believed to be the first of its kind, the publication had wide acceptance. The Comptroller General had copies published for use by members of the General Accounting Office, and more than 4,000 copies were sold.

The Air Force offered increased audit service on contractors' price proposals. A considerable effort was made to allow buyers the benefit of audit review before contracts were awarded. For the same purpose the audit services of the three military departments have assigned contract audit coordinators to the home offices of multiplant contractors.

Inspection

There were 83 inspections and surveys during the fiscal year. Because of the military buildup, particular attention was paid to the capabilities of reserve units operating under TAC. Other major inspections were made of the Air Force Logistics Command, the X-20A Dyna-Soar program, and the integration of TITAN missiles into the USAF inventory. The Air Force began a series of inspections

of supply operations at bases within the United States, before examining all major supply functions.

Growing concern over spiraling defense costs and the need for prudent management of new or accelerated weapon programs prompted the Air Force to survey the management procedures of five important contractors. USAF inspectors noted the increased number of letter contracts remaining to be formalized, insufficient control of engineering changes, and ineffective methods of estimating and reporting costs. There were also deficiencies in configuration, production, and quality control procedures. After publicizing these shortcomings throughout the aerospace industry, the Air Force found indications of general improvements.

Inspections ranged from squadrons in the field to headquarters offices in the Pentagon. Inspectors surveyed personnel procurement and classification, command training, manpower validation and utilization, base supply and maintenance, and organizational planning and control. Activities of USAF inspectors extended to oversea command and attaché offices.

Safety

In its never-ending drive to protect its people and materiel, the Air Force made 16 flight, 22 ground, 18 missile, and 27 nuclear safety

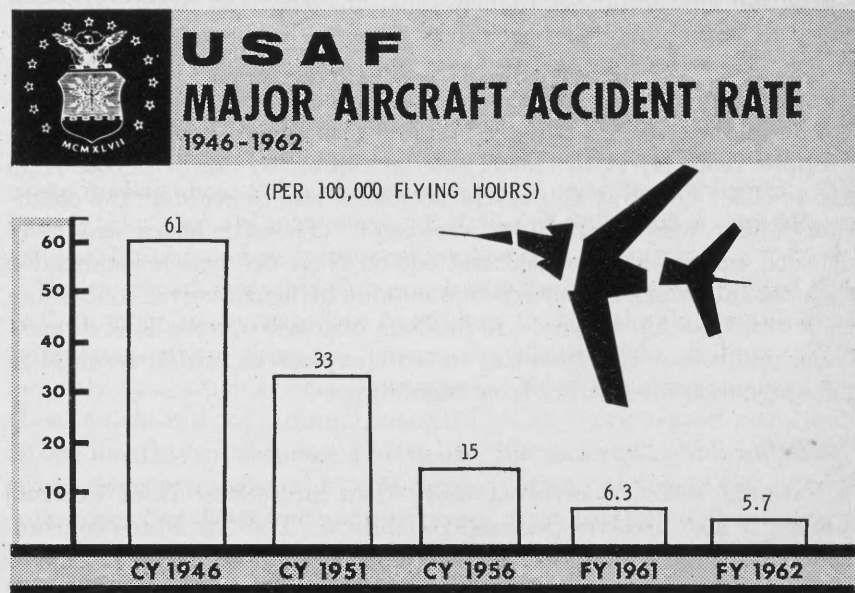


Figure 10.

surveys and staff assistance visits. The following summary indicates the improvements in every aspect of flying safety in fiscal year 1962 as compared with the previous year: Major aircraft accident rate per 100,000 flying hours, 5.7 compared with 6.3; major aircraft accidents, 390 compared with 440; aircraft destroyed, 293 compared with 306; and fatalities in aircraft accidents, 296 compared with 347. There were 118 aircraft accidents in which 1 or more persons were killed compared with 122, and midair collisions numbered 13 compared with 16.

The Air Force placed more emphasis on safety in the design, test, and development phases of missiles without decreasing its stress on operational safety. Safety surveys and accident investigations brought information on safety problems to the attention of USAF commanders. The Air Force studied methods for protecting surface-launched missiles against lightning. A comprehensive educational program featured missile safety films.

Inspectors conducted safety surveys and staff assistance visits to 53 units possessing nuclear weapons. Thirty-eight sets of nuclear safety rules were published, and previously prescribed rules were evaluated and found generally workable and effective. The Air Force gave special attention to insuring that a nuclear accident would not occur, radiation exposure would be negligible, and that the general public would be protected. With the advent of the MINUTEMAN, a program was established to insure that unauthorized attempts to gain entry to launch facilities would be detected and countered immediately. The education and training program included wide distribution of safety films, accident reports, and special articles.

The number of disabling ground injuries during fiscal year 1962 dropped from 14,740 to 11,905, but the number of fatalities rose from 510 to 548. One way to prevent accidents was to evaluate the conditions under which explosives were kept. The Air Force sent more detailed instructions to field stations on their use and recommended that the Interstate Commerce Commission bring directives concerning their transport up to date. A problem overseas was the lack of sufficient real estate and facilities to store explosives, which resulted in many requests for waivers from regulations.

Security

National security involves more than protection from external forces; it also involves personal reliability. The Air Force continually screens personnel who control or have access to nuclear weapons or devices, and has reassigned from critical posts individuals found to be emotionally or mentally unreliable. To this end, on February

28, 1962, a new Air Force Regulation 35-9 on "Human Reliability" listed 19 categories of officers and 12 of airmen who would be screened for mental stability in order to retain critical job assignments as fighter-interceptor pilots, missile commanders, nuclear weapons specialists, missile maintenance men, and others who handle nuclear weapons. The regulation would help to screen personnel who might through boredom, impulse, or psychosis act in a way contrary to the national interest.

Weapons were analyzed to determine their vulnerability to sabotage and, where possible, weaknesses were eliminated by engineering or design changes. Armed guards furnished further protection. The Air Force participated in interdepartmental exchange of information on detection alarm devices. It stressed controls over meetings where security information would be discussed and over attendance at meetings by foreign nationals. Special rules governed attendance by representatives of the Sino-Soviet bloc. The Air Force required that all airman recruits undergo a national agency check as a basis for granting clearance for access to classified information.

The Air Force continued to maintain a good discipline record. The monthly offense rate was 11.7 per 1,000 personnel as compared with 11.9 for the previous year. Improved liaison with interdepartmental, Federal, State, local, and foreign agencies enabled USAF commanders to give greater emphasis to traffic supervisory programs to reduce fatal, disabling, and costly accidents.

Administrative Management

By improved management and disposition procedures, the Air Force is able to destroy an estimated 700,000 cubic feet of records each year. Since it costs about \$50 a year to maintain a cubic foot of records, this destruction amounts to a potential saving of \$35 million annually in office and storage space, equipment, and labor.

Better use of daily airmail pouch service saved an estimated \$9.6 million annually by reducing from 25 to 15 days the time required to transmit security clearance papers for about 5,000 civilians hired monthly by weapon system contractors. By eliminating the need for Government bills of lading, controlled pouch service saved more than \$6,000 monthly in shipments of spares and technical publications between the contractor and 25 SAC bases. By acquiring 15,000 surplus lock boxes and 2,000 units of equipment from the Post Office Department for use at oversea installations, the Air Force saved \$230,000, the market price of these items.

XI. Budget

1962 Budget

The Air Force budget for fiscal year 1962, as initially approved by President Dwight D. Eisenhower, provided for \$17.856 billion in new obligational authority, including \$539 million for military construction. In March 1961, President John F. Kennedy presented an adjusted request for a net increase of \$373 million. The President desired additional outlays for the MINUTEMAN, SKYBOLT, and airborne alert programs and lesser increases for X-20 Dyna-Soar, air-lift modernization, tactical fighters, accelerated KC-135A production, missile penetration aids, and research and development for limited war equipment. In May the President asked for an additional \$77 million for the Air Force, principally for research and development of upper-stage boosters and large solid-propellant engines.

In July 1961, new military demands resulting from the Berlin crisis prompted the President to ask Congress for a third increase in the fiscal year 1962 defense budget. This request included an additional \$754 million for the Air Force, primarily for increases in procurement of supplies and equipment and for military personnel, tactical and transport aircraft, and operating and maintenance costs accompanying the call to active duty of reserve forces. It raised the President's request for new obligating authority for the Air Force to a total of \$19.059 billion, including \$578 million for military construction.

The Department of Defense appropriation bill for fiscal year 1962, enacted by Congress in August 1961, contained \$18.837 billion in new obligational authority for the Air Force. A separate bill provided \$521 million for military construction. The total appropriation of \$19.358 billion was a net increase of \$299 million above the President's final request. Congress increased funds principally for the procurement of more B-52 bombers and a step-up in research, development, test, and evaluation for the XB-70 bomber and the X-20 Dyna-Soar. In funding the XB-70, Congress transferred the appropriation from the aircraft procurement account to the research, development, test, and evaluation account.

The major cost categories for the 1962 budget follow: Operation and maintenance (including ANG), \$4.686 billion; military personnel (including AFR and ANG personnel), \$4.3 billion (plus \$64 million from working capital funds); aircraft procurement, \$3.2 billion (plus \$225 million from prior appropriations); missile procurement, \$2.745 billion; research, development, test, and evaluation, \$2.403 billion; other procurement, \$1.101 billion; and airlift modernization, \$401 million.

The following table summarizes the amounts made available by direct appropriations and by fund transfers:

AMOUNT AVAILABLE FOR OBLIGATION BY THE AIR FORCE DURING
FISCAL YEAR 1962 AS OF JUNE 30, 1962

(Millions of Dollars¹)

Department of Defense Appropriation Act, 1962-----	18,836.5
Military Construction Appropriation Act, 1962-----	521.2
 Total new obligational authority enacted-----	 19,357.8
Unobligated balance of prior-year programs-----	3,827.3
Transfer to Emergency Fund, DOD, from:	
Military Personnel, AF-----	-21.2
Reserve Personnel, AF-----	-3.9
Operation and Maintenance, ANG-----	-10.5
Aircraft Procurement, AF-----	-87.2
Missile Procurement, AF-----	-15.0
Other Procurement, AF-----	-4.8
Research, Development, Test and Evaluation, AF-----	-2.5
Transfer from Emergency Fund, DOD, to:	
Research, Development, Test and Evaluation, AF-----	129.1
Military Construction, AF-----	8.0
Military Construction, ANG-----	2.5
Transfer to Operation and Maintenance, AF, from:	
Operation and Maintenance, Navy-----	.4
Operation and Maintenance, Army-----	.6
Transfer to Operating Expenses, Public Building Service, General Services Administration, from Operation and Maintenance, AF--	-.5
Transfer from Military Construction, DOD, to Military Construction, AF-----	16.4
Rescission-----	-514.5
Reappropriation-----	143.8
Anticipated reimbursements-----	1,013.3
 Total available for obligation during fiscal year 1962-----	 23,839.1

¹ Represents nearest rounded figures. Amounts will not necessarily add to total.

USAF ACTUAL OBLIGATIONS AND NET EXPENDITURES FOR FISCAL
YEAR 1962 AS OF JUNE 30, 1962

(Millions of Dollars)

	<i>Obligations</i>	<i>Net Expenditures</i>
Military Personnel-----	4, 204.0	4, 212.3
Reserve Personnel-----	50.9	50.7
National Guard Personnel-----	44.2	43.0
Operation and Maintenance, AF-----	4, 806.8	4, 481.2
Operation and Maintenance, ANG-----	171.6	172.9
Aircraft Procurement-----	3, 448.9	3, 830.8
Airlift Modernization-----	423.8	291.4
Missile Procurement-----	3, 194.1	3, 405.5
Other Procurement-----	1, 242.2	981.1
Aircraft, Missiles, and Related Procurement-----	-----	264.8
Procurement Other Than Aircraft and Missiles-----	-----	77.7
Research, Development, Test and Evaluation-----	2, 644.8	2, 174.6
Military Construction, AF-----	746.3	882.1
Military Construction, AFR-----	3.9	2.6
Military Construction, ANG-----	18.3	12.3
Miscellaneous-----	-----	-43.1
Total-----	20, 999.7	20, 839.8

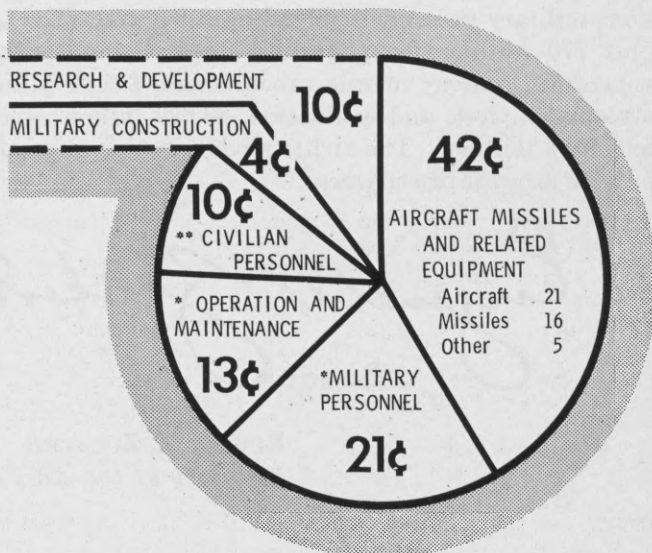
Budget Management

In preparing its fiscal year 1963 budget, the Air Force applied for the first time the principles of a new programing and financial management system. Introduced by the Office of the Secretary of Defense during the last half of fiscal year 1961, the new approach is based on the identification of "program elements" and "program packages." It integrates more effectively planning, programing, and financial management into an always current 5-year structure and financial program. This insures a formal method for gathering and presenting data, facilitates the decision-making process within the Department of Defense, and allows for the selection of alternative defense programs and weapon systems.

The new system provides for the establishment of an approved program and financial base to assure advance program information for 9 years and financial data for 6 years. It also includes a formal procedure for proposing changes to the approved base. Finally, progress reporting of financial and nonfinancial data against an approved milestone schedule assures more balanced budgeting for those programs having the best chance of being completed.



HOW THE AIR FORCE DOLLAR WAS SPENT IN FY 1962



- * INCLUDES RESERVE AND AIR NATIONAL GUARD COSTS
- ** INCLUDES DIRECT HIRE AND CONTRACT PERSONNEL.

Figure 11.

1963 Budget

The President's Air Force budget request for fiscal year 1963 sought \$19.757 billion in new obligational authority, including \$831 million for military construction. With the addition of funds from reimbursements, transfers, and withholdings from prior-year appropriations—notably \$514.5 million for long-range bombers, \$180 million for the XB-70 bomber, and \$85.8 million for X-20 Dyna-Soar—the total available would be \$21.2 billion.

The request for new obligational authority represented a net increase of \$698 million above the final request for fiscal year 1962. The increase was principally for more operational equipment, modifications, and military construction in support of the ballistic missile program; accelerated procurement of modern tactical fighter aircraft;

initial procurement of C-141 jet transports; and an improved limited war capability.

The Department of Defense appropriation bill passed by the Congress in August 1962 gave the Air Force \$19.391 billion, and a separate bill added \$866.8 million for military construction. The major cost categories follow: Operation and maintenance (including ANG), \$4.560 billion; military personnel (including AFR and ANG), \$4.221 billion (plus \$70 million from working capital funds); aircraft procurement, \$3.562 billion; missile procurement, \$2.459 billion; research, development, test, and evaluation, \$3.632 billion; and other procurement, \$956 million. The airlift modernization appropriation was merged with aircraft procurement.

A handwritten signature in cursive script, reading "Eugene M. Zuckert". The signature is written in dark ink and is positioned above the printed name and title.

EUGENE M. ZUCKERT,
Secretary of the Air Force.

Appendix

Appendix

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Note. Subtotals in these tables may not add to totals due to rounding.

Table 1

MAJOR FORCES

	June 30, 1961 actual	June 30, 1962 actual	June 30, 1963 estimate ¹
DEPARTMENT OF DEFENSE			
Active Duty Personnel.....	2, 483, 771	2, 807, 819	2,703, 344
Active Aircraft Inventory.....	31, 262	31, 415	30, 292
DEPARTMENT OF THE ARMY			
Divisions.....	14	² 16	16
Armored Cavalry Regiments.....	6	6	4
Armored Combat Commands.....	1		
Brigades (Infantry).....	2	1	5
Battle Groups (Infantry).....	8	9	8
Special Forces Groups.....	3	4	6
Army Missile Commands.....	4	3	2
Missile Battalions.....	103	95	97
Active Duty Personnel.....	858, 622	1, 066, 404	980, 000
Active Aircraft Inventory.....	5, 564	5, 648	5, 946
DEPARTMENT OF THE NAVY			
Commissioned Ships in Fleet.....	819	900	859
Warships.....	(375)	(397)	(384)
Other.....	(444)	(503)	(475)
Attack Carrier Air Groups.....	17	18	17
Carrier Antisubmarine Air Groups.....	11	12	11
Patrol and Warning Squadrons.....	38	53	35
Marine Divisions.....	3	3	3
Marine Air Wings.....	3	3	3
Active Duty Personnel.....	803, 998	857, 390	854, 413
Navy.....	(627, 089)	(666, 428)	(664, 413)
Marine Corps.....	(176, 909)	(190, 962)	(190, 000)
Active Aircraft Inventory.....	8, 793	9, 176	8, 807
DEPARTMENT OF THE AIR FORCE			
USAF Combat Wings.....	88	97	87
Strategic Wings.....	(37)	(36)	(33)
Air Defense Wings.....	(19)	(18)	(18)
Tactical Wings (including airlift).....	(32)	(43)	(36)
USAF Combat Support Flying Squadrons.....	121	141	134
Active Duty Personnel.....	821, 151	884, 025	868, 931
Active Aircraft Inventory.....	16, 905	16, 591	15, 539

¹ As planned for fiscal year 1964 budget.² Excludes two National Guard divisions on active duty.

Table 2

MAJOR PROGRAMS
TOTAL OBLIGATIONAL AUTHORITY ¹

(In Billions of Dollars)

	FY 1961 actual ²	FY 1962 original	FY 1962 actual	FY 1963 esti- mated
MAJOR PROGRAMS				
Strategic Retaliatory Forces-----		7. 6	9. 1	8. 5
Continental Air and Missile Defense Forces-----		2. 2	2. 1	1. 9
General Purpose Forces-----		14. 5	17. 5	18. 1
Airlift/Sealift Forces-----		. 9	1. 2	1. 4
Reserve and Guard Forces-----		1. 7	1. 8	2. 0
Research and Development-----		3. 9	4. 3	5. 5
General Support-----		12. 3	12. 7	13. 7
Civil Defense-----			. 3	. 2
Military Assistance-----		1. 8	1. 8	1. 6
TOTAL OBLIGATIONAL AUTHORITY-----	46. 1	44. 9	51. 0	52. 8

¹ Total obligational authority represents the total financial requirements for the program approved for initiation in a given fiscal year, regardless of the year in which the funds were authorized or appropriated.

² Breakdown not available for fiscal year 1961.

Table 3

**OBLIGATIONS FOR MILITARY FUNCTIONS
FISCAL YEARS 1961-62**

(In Millions of Dollars)

	Unobligated balance brought forward	New obligation availability	Reimbursements, recoveries, etc.	Total obligation availability	Obligations	Unobligated balance carried forward ¹
DEPARTMENT OF DEFENSE						
Fiscal Year 1961	8, 638	41, 656	2, 642	52, 936	45, 725	7, 167
Fiscal Year 1962	7, 167	48, 232	3, 222	58, 622	51, 504	7, 120
BY APPROPRIATION TITLE						
<i>Military Personnel</i>						
Fiscal Year 1961	(²)	12, 144	249	12, 393	12, 392	-----
Fiscal Year 1962	-----	13, 098	256	13, 354	13, 309	(²)
<i>Operation & Maintenance</i>						
Fiscal Year 1961	100	10, 702	987	11, 789	11, 674	84
Fiscal Year 1962	84	11, 759	1, 188	13, 031	13, 009	75
<i>Procurement</i>						
Fiscal Year 1961	7, 093	13, 453	834	21, 380	15, 649	5, 723
Fiscal Year 1962	5, 723	16, 780	1, 138	23, 641	17, 911	5, 730
<i>RDT&E</i>						
Fiscal Year 1961	541	4, 296	486	5, 323	4, 643	676
Fiscal Year 1962	676	5, 368	412	6, 455	5, 677	778
<i>Civil Defense</i>						
Fiscal Year 1961	-----	-----	-----	-----	-----	-----
Fiscal Year 1962	-----	256	1	257	249	2
<i>Construction</i>						
Fiscal Year 1961	904	1, 061	85	2, 051	1, 367	684
Fiscal Year 1962	684	972	228	1, 883	1, 349	534

See footnotes at end of table.

Table 3—Continued

OBLIGATIONS FOR MILITARY FUNCTIONS

FISCAL YEARS 1961-62

(In Millions of Dollars)

	Unobligated balance brought forward	New obligation availability	Reimbursements, recoveries, etc.	Total obligation availability	Obligations	Unobligated balance carried forward ¹
BY AGENCY						
<i>Army</i>						
Fiscal Year 1961	987	10, 174	1, 120	12, 281	11, 501	790
Fiscal Year 1962	790	12, 481	2, 060	15, 331	14, 217	1, 212
<i>Navy</i>						
Fiscal Year 1961	2, 657	12, 506	634	15, 798	13, 318	2, 439
Fiscal Year 1962	2, 439	14, 805	662	17, 906	14, 872	2, 998
<i>Air Force</i>						
Fiscal Year 1961	4, 852	17, 914	889	23, 655	19, 824	3, 827
Fiscal Year 1962	3, 827	19, 513	499	23, 839	21, 000	2, 814
<i>OSD & Defense Agencies</i>						
Fiscal Year 1961	142	1, 062	—2	1, 202	1, 081	111
Fiscal Year 1962	111	1, 178	(²)	1, 289	1, 167	94
<i>Office of Civil Defense</i>						
Fiscal Year 1961	-----	-----	-----	-----	-----	-----
Fiscal Year 1962	-----	256	1	257	249	2

¹ Consists of pre-closing balance minus expired funds.² Less than \$500,000.

Table 4

**EXPENDITURES FOR MILITARY FUNCTIONS
FISCAL YEARS 1961-62**

(In Millions of Dollars)

	Unex- pended balance brought forward	New expenditure availability	Total available for expenditure	Expendi- tures	Unex- pended balance carried forward ¹
DEPARTMENT OF DEFENSE					
Fiscal Year 1961 -----	30,660	41,279	71,939	43,228	28,584
Fiscal Year 1962 -----	28,606	47,224	75,830	46,815	28,697
BY APPROPRIATION TITLE					
<i>Military Personnel</i>					
Fiscal Year 1961 -----	660	12,132	12,792	12,085	626
Fiscal Year 1962 -----	626	13,098	13,724	13,032	486
<i>Operation & Maintenance</i>					
Fiscal Year 1961 -----	2,142	10,684	12,826	10,766	2,027
Fiscal Year 1962 -----	2,027	11,759	13,787	11,639	2,041
<i>Procurement</i>					
Fiscal Year 1961 -----	21,311	13,200	34,510	14,942	19,560
Fiscal Year 1962 -----	19,560	16,122	35,682	15,901	19,785
<i>RDT&E</i>					
Fiscal Year 1961 -----	2,600	4,523	7,123	4,129	2,990
Fiscal Year 1962 -----	2,990	5,367	8,357	4,904	3,452
<i>Civil Defense</i>					
Fiscal Year 1961 -----					
Fiscal Year 1962 -----		292	292	90	193
<i>Construction</i>					
Fiscal Year 1961 -----	2,244	1,079	3,323	1,605	1,718
Fiscal Year 1962 -----	1,718	973	2,690	1,347	1,343
<i>Revolving & Mgmt Funds</i>					
Fiscal Year 1961 -----	1,702	-338	1,364	² -299	1,663
Fiscal Year 1962 -----	1,684	-387	1,297	² - 99	1,395

See footnotes at end of table.

Table 4—Continued

EXPENDITURES FOR MILITARY FUNCTIONS FISCAL YEARS 1961–62

(In Millions of Dollars)

	Unex- pended balance brought forward	New expenditure availability	Total available for expenditure	Expendi- tures	Unex- pended balance carried forward ¹
BY AGENCY					
<i>Army</i>					
Fiscal Year 1961-----	4, 857	9, 899	14, 756	10, 131	4, 602
Fiscal Year 1962-----	4, 605	12, 095	16, 700	11, 427	5, 241
<i>Navy</i>					
Fiscal Year 1961-----	10, 913	12, 430	23, 343	12, 215	11, 075
Fiscal Year 1962-----	11, 083	14, 751	25, 835	13, 260	12, 477
<i>Air Force</i>					
Fiscal Year 1961-----	14, 360	17, 861	32, 221	19, 778	12, 402
Fiscal Year 1962-----	12, 412	18, 855	31, 267	20, 840	10, 278
<i>OSD & Defense Agencies</i>					
Fiscal Year 1961-----	530	1, 089	1, 619	1, 105	505
Fiscal Year 1962-----	505	1, 229	1, 734	1, 198	507
<i>Office of Civil Defense</i>					
Fiscal Year 1961-----					
Fiscal Year 1962-----		294	294	90	194

¹ Net balance after withdrawals and restorations of unexpended balances as provided in Public Law 798. Differences between 1961 ending balances and 1962 balances brought forward are due to reclassification of \$21.8 million of revolving funds from civil to military functions at the beginning of fiscal year 1962.

² Reimbursements exceeded expenditures.

Table 5

NEW OBLIGATIONAL AVAILABILITY FOR MILITARY FUNCTIONS FISCAL YEAR 1962

(In Millions of Dollars)

	Department of Defense	Army	Navy	Air Force	Defense-wide activities ¹
TOTAL-----	48, 232	12, 481	14, 805	19, 513	1, 434
MILITARY PERSONNEL----	13, 098	4, 461	3, 442	4, 275	920
Active Forces-----	11, 545	4, 037	3, 333	4, 176	-----
Reserve Forces-----	633	424	109	99	-----
Retired Pay-----	920	-----	-----	-----	920
OPERATION & MAINTENANCE-----	11, 759	3, 943	3, 084	4, 676	56
PROCUREMENT-----	16, 780	2, 532	6, 764	7, 484	-----
Aircraft-----	5, 730	243	1, 830	3, 658	-----
Missiles-----	4, 180	572	878	2, 730	-----
Ships-----	2, 967	-----	2, 967	-----	-----
Astronautics-----	-----	-----	-----	-----	-----
Ordnance, etc-----	1, 830	1, 196	345	289	-----
Electron. & Communic-----	1, 375	307	391	677	-----
Other Procurement-----	697	214	354	130	-----
RDT&E-----	5, 368	1, 337	1, 309	2, 530	192
Military Sciences-----	731	285	142	113	190
Aircraft-----	860	51	91	719	-----
Missiles-----	1, 424	469	684	271	-----
Ships-----	196	-----	196	-----	-----
Astronautics-----	822	88	26	708	-----
Ordnance, etc-----	182	108	74	-----	-----
Other Equipment-----	526	234	47	245	-----
Program-wide Mgmt-----	627	102	50	474	1
Emergency Fund-----	(²)	-----	-----	-----	(²)
CIVIL DEFENSE-----	256	-----	-----	-----	256
MILITARY CONSTRUCTION-----	972	208	206	548	10
Active Forces-----	903	171	199	523	10
Reserve Forces-----	69	36	7	25	-----

¹ Includes Office of the Secretary of Defense, JCS, Defense agencies, Office of Civil Defense, etc.² Less than \$500,000.

Table 6

DEFENSE BUDGET **FISCAL YEAR 1963 ¹**

(New Obligational Availability in Millions of Dollars)

	Budget estimates, January 18, 1962 ²	Amend- ments, July 31, 1962	Supple- mental request, August 13, 1962	Revised estimates	Appropri- ation acts ³
TOTAL, MILITARY FUNC- TIONS-----	50, 365	277	158	50, 799	50, 033
BY APPROPRIATION TITLE					
Military Personnel-----	13, 495	-----	140	13, 636	13, 349
Operation and Maintenance--	11, 569	-----	17	11, 586	11, 564
Procurement-----	16, 445	-----	-----	16, 445	16, 667
RDT&E-----	6, 843	-----	-----	6, 843	7, 022
Civil Defense-----	695	-----	-----	695	113
Military Construction-----	1, 318	277	-----	1, 595	1, 319
BY AGENCY					
Army-----	12, 196	57	56	12, 310	12, 120
Navy-----	15, 527	82	44	15, 653	15, 373
Air Force-----	19, 828	132	58	20, 018	20, 327
Defense Agencies-----	2, 120	5	-----	2, 125	2, 099
Civil Defense-----	695	-----	-----	695	113

¹ Excludes funds made available to the Department of Defense for the Military Assistance Program (\$1,325 million) and for Army civil works and civil functions (\$1,061 million).

² Includes budget amendments of April 2, 1962, that redistributed \$6.9 million from "Reserve Personnel, Army" to "National Guard Personnel, Army" without changing totals as shown.

³ Includes the Department of Defense Appropriation Act of August 9, 1962 (Public Law 87-577), the Military Construction Appropriation Act of September 25, 1962 (Public Law 87-684), and the Independent Offices Appropriation Act of October 3, 1962 (Public Law 87-741).

Table 7

REDUCTIONS IN WORKING CAPITAL FUNDS FISCAL YEARS 1953-62

(In Millions of Dollars)

	Transfers to other ac- counts in lieu of new appro- priations ¹	Congressional rescissions	Total reduc- tions
TOTAL, FISCAL YEARS 1953-62	2, 745. 5	3, 406. 0	6, 151. 5
STOCK FUNDS	2, 508. 5	3, 049. 0	5, 557. 5
Fiscal Year 1953			
1954		535. 0	535. 0
1955		550. 0	550. 0
1956		1, 454. 0	1, 454. 0
1957	² 437. 0	510. 0	947. 0
1958	³ 470. 0		470. 0
1959	³ 520. 0		520. 0
1960	³ 430. 0		430. 0
1961	³ 365. 5		365. 5
1962	³ 286. 0		286. 0
INDUSTRIAL FUNDS	237. 0	357. 0	594. 0
Fiscal Year 1953			
1954			
1955			
1956		195. 0	195. 0
1957		162. 0	162. 0
1958	³ 120. 0		120. 0
1959	³ 15. 0		15. 0
1960			
1961			
1962	³ 102. 0		102. 0

¹ Amounts actually transferred pursuant to authorization or direction of the Congress.² To finance military construction programs.³ To finance military personnel costs.

Table 8

RESEARCH, DEVELOPMENT, TEST, AND EVALUATION PROGRAMS OBLIGATIONS

(In Millions of Dollars)

	Fiscal year 1961 actual	Fiscal year 1962 actual	Fiscal year 1963 estimated
TOTAL.....	6, 653. 1	6, 808. 1	7, 722. 0
RESEARCH, DEVELOPMENT, TEST, AND EVALUATION.....	6, 165. 0	6, 346. 4	7, 193. 0
Military Sciences.....	620. 5	765. 5	936. 2
Aircraft and Related Equipment.....	680. 3	614. 5	688. 6
Missiles and Related Equipment.....	3, 194. 8	2, 752. 6	2, 445. 6
Military Astronautics and Related Equipment.....	608. 6	784. 8	1, 247. 1
Ships, Small Craft, and Related Equip- ment.....	212. 9	204. 6	212. 0
Ordnance, Combat Vehicles, and Related Equipment.....	168. 1	202. 9	256. 0
Other Equipment.....	443. 0	526. 0	806. 2
Management and Support.....	236. 8	495. 5	480. 9
Emergency Fund ¹			120. 4
SUPPORTING ACTIVITIES.....	488. 1	461. 7	529. 0
Military Personnel.....	205. 1	242. 2	240. 0
Procurement.....	169. 9	109. 1	178. 1
Civil Defense.....		18. 0	11. 0
Military Construction.....	113. 1	92. 4	99. 9

¹ The emergency funds used during fiscal years 1961 and 1962 have been added to the appropriate sub-categories.

Table 9

ACTIVE DUTY MILITARY PERSONNEL

	Department of Defense	Army	Navy	Marine Corps	Air Force
TOTAL					
June 30, 1961_	2, 483, 771	858, 622	627, 089	176, 909	821, 151
June 30, 1962_	2, 807, 819	1, 066, 404	666, 428	190, 962	884, 025
OFFICERS					
June 30, 1961_	314, 827	99, 921	69, 981	16, 132	128, 793
June 30, 1962_	343, 121	116, 050	75, 302	16, 861	134, 908
<i>Regulars</i>					
June 30, 1961_	153, 830	40, 474	47, 341	11, 180	54, 835
June 30, 1962_	159, 685	41, 356	48, 837	10, 590	58, 902
<i>Reserves</i> ¹					
June 30, 1961_	160, 997	59, 447	22, 640	4, 952	73, 958
June 30, 1962_	183, 436	74, 694	26, 465	6, 271	76, 006
ENLISTED					
June 30, 1961_	2, 158, 529	756, 932	551, 603	160, 438	689, 556
June 30, 1962_	2, 452, 466	948, 597	584, 071	173, 615	746, 183
OFFICER CANDIDATES					
June 30, 1961_	10, 415	1, 769	5, 505	339	2, 802
June 30, 1962_	12, 232	1, 757	7, 055	486	2, 934

¹ Members of reserve components, including National Guard, plus a small number of officers without component in the Army of the United States or the Air Force of the United States.

Table 10

MILITARY PERSONNEL BUILDUP ¹
JULY 1-DECEMBER 31, 1961

(In Thousands)

Manpower source	Department of Defense	Army	Navy	Marine Corps	Air Force
GROSS BUILDUP-----	328	230	35	14	49
INCREASED VOLUNTARY P R O C U R E M E N T (ENLISTMENTS / REEN- LISTMENTS) ² -----	70	20	20	14	17
INCREASED INDUC- TIONS ² -----	47	47	-----	-----	-----
INVOLUNTARY EX- TENSIONS OF TOURS OF DUTY ³ -----	63	50	7	-----	5
RESERVE RECALLS ⁴ -----	148	113	8	-----	27
Nonprior Service, Includ- ing 6-Month Trainees----	66	45	3	-----	17
Prior Service Paid Status--	54	41	5	-----	8
Prior Service Nonpaid Sta- tus-----	28	27	-----	-----	1

¹ Preliminary.

² Based on comparison of actual strengths, gains and losses during July-December 1961, with those originally planned under initial (Eisenhower budget) manpower plans for fiscal year 1962.

³ Represents the number of personnel who were on active duty as of December 31, 1961, as a result of involuntary extensions. The gross number of personnel who were involuntarily retained, for varying periods, during fiscal year 1962, as a whole, totaled 114,000. (Army, 93,000; Navy, 13,000; Air Force, 8,000.)

⁴ Reservists on active duty as result of involuntary recall.

Table 11

DEPLOYMENT OF MILITARY PERSONNEL

(Percentages Listed in Parentheses)

	Department of Defense	Army	Navy	Marine Corps	Air Force
TOTAL					
June 30, 1961_	2, 483, 771 (100. 0)	858, 622 (100. 0)	617, 089 (100. 0)	176, 909 (100. 0)	821, 151 (100. 0)
June 30, 1962_	2, 807, 819 (100. 0)	1, 066, 404 (100. 0)	666, 428 (100. 0)	190, 962 (100. 0)	884, 025 (100. 0)
SHORE ACTIVITIES					
June 30, 1961_	2, 110, 569 (85. 0)	858, 622 (100. 0)	262, 285 (41. 8)	168, 511 (95. 3)	821, 151 (100. 0)
June 30, 1962_	2, 416, 305 (86. 1)	1, 066, 404 (100. 0)	284, 034 (42. 6)	181, 842 (95. 2)	884, 025 (100. 0)
<i>Continental U.S.</i>					
June 30, 1961_	1, 467, 146 (59. 1)	501, 748 (58. 4)	224, 004 (35. 7)	130, 742 (73. 9)	610, 652 (74. 4)
June 30, 1962_	1, 695, 471 (60. 4)	652, 918 (61. 2)	244, 623 (36. 7)	139, 145 (72. 9)	658, 785 (74. 5)
<i>Outside Conti- nental U.S.</i>					
June 30, 1961_	643, 423 (25. 9)	356, 874 (41. 6)	38, 281 (6. 1)	37, 769 (21. 4)	210, 499 (25. 6)
June 30, 1962_	720, 834 (25. 7)	413, 486 (38. 8)	39, 411 (5. 9)	42, 697 (22. 3)	225, 240 (25. 5)
AFLOAT & MO- BILE ACTIVI- TIES					
June 30, 1961_	373, 202 (15. 0)	-----	364, 804 (58. 2)	8, 398 (4. 7)	-----
June 30, 1962_	391, 514 (13. 9)	-----	382, 394 (57. 4)	9, 120 (4. 8)	-----

Table 12

MILITARY PERSONNEL BY MAJOR ACTIVITIES

(Percentages are Listed in Parentheses)

	Department Defense	Army	Navy	Marine Corps	Air Force
TOTAL					
June 30, 1961..	2, 483, 771 (100. 0)	858, 622 (100. 0)	627, 089 (100. 0)	176, 909 (100. 0)	821, 151 (100. 0)
June 30, 1962..	2, 807, 819 (100. 0)	1, 066, 404 (100. 0)	666, 428 (100. 0)	190, 962 (100. 0)	884, 025 (100. 0)
<i>Operating Forces</i>					
June 30, 1961..	1, 608, 719 (64. 8)	569, 800 (66. 4)	393, 784 (62. 8)	114, 194 (64. 6)	530, 941 (64. 7)
June 30, 1962..	1, 848, 414 (65. 8)	711, 366 (66. 7)	406, 491 (61. 0)	132, 161 (69. 2)	598, 396 (67. 7)
<i>Supporting Forces</i>					
June 30, 1961..	393, 154 (15. 8)	147, 747 (17. 2)	89, 509 (14. 3)	17, 077 (9. 6)	138, 821 (16. 8)
June 30, 1962..	401, 055 (14. 3)	159, 653 (14. 9)	94, 152 (14. 1)	17, 070 (8. 9)	130, 180 (14. 7)
<i>Training Forces</i>					
June 30, 1961..	415, 227 (16. 7)	125, 636 (14. 6)	107, 043 (17. 1)	32, 444 (18. 3)	150, 104 (18. 3)
June 30, 1962..	479, 286 (17. 1)	174, 391 (16. 4)	116, 773 (17. 5)	33, 773 (17. 7)	154, 349 (17. 5)
<i>Transients and Patients</i>					
June 30, 1961..	66, 671 (2. 7)	15, 439 (1. 8)	36, 753 (5. 8)	13, 194 (7. 5)	1, 285 (0. 2)
June 30, 1962..	79, 064 (2. 8)	20, 994 (2. 0)	49, 012 (7. 4)	7, 958 (4. 2)	1, 100 (0. 1)

Table 13

MILITARY PERSONNEL BY GRADE

JUNE 30, 1962

(Percentages Listed in Parentheses)

	Department of Defense	Army	Navy	Marine Corps	Air Force
TOTAL.....	2,807,819	1,066,404	666,423	190,962	884,025
OFFICERS.....	343,121	116,050	75,302	16,861	134,908
Percent of Total.....	(12.2)	(10.9)	(11.3)	(8.8)	(15.3)
Gen. of the Army—Fleet Admiral.....	4	3	1		
General —Admiral.....	34	13	9	1	11
Lt. General —Vice Admiral.....	110	37	35	6	32
Maj. General } Rear Admiral.....	1,155	207	252	21	174
Brig. General }		252		33	216
Colonel —Captain.....	14,997	5,213	4,077	597	5,110
Lt. Colonel —Commander.....	37,448	12,786	8,366	1,406	14,890
Major —Lt. Commander.....	56,682	17,856	12,390	2,351	24,085
Captain —Lieutenant.....	105,507	31,127	20,357	4,262	49,761
1st Lieutenant —Lieutenant (JG).....	63,731	18,473	14,994	4,114	26,150
2nd Lieutenant —Ensign.....	45,035	19,258	12,090	2,833	10,854
Chief Warrant Officer W-4.....	2,699	1,226	821	97	555
Chief Warrant Officer W-3.....	5,100	2,799	690	151	1,460
Chief Warrant Officer W-2.....	8,089	5,042	1,215	226	1,606
Warrant Officer W-1.....	2,530	1,758	5	763	4
ENLISTED ¹	2,452,468	948,597	584,071	173,615	746,185
Percent of Total.....	(87.3)	(88.9)	(87.6)	(90.9)	(84.4)
Pay Grade E-9.....	10,070	2,501	1,735	716	5,118
Pay Grade E-8.....	31,731	10,535	7,474	2,447	11,275
Pay Grade E-7.....	125,342	42,793	40,471	6,883	35,195
Pay Grade E-6.....	235,096	87,690	68,494	9,283	69,629
Pay Grade E-5.....	416,296	153,035	93,594	16,453	153,214
Pay Grade E-4.....	513,746	208,749	113,255	30,904	160,838
Pay Grade E-3.....	578,961	234,294	132,123	36,714	175,830
Pay Grade E-2.....	392,129	131,002	103,878	46,336	110,913
Pay Grade E-1.....	149,097	77,998	23,047	23,879	24,173
OFFICER CANDIDATES.....	12,230	1,757	7,055	486	2,932
Percent of Total.....	(0.4)	(0.2)	(1.1)	(0.3)	(0.3)

¹ Enlisted are shown by pay grade due to wide diversity of title. "Proficiency Pay" was being received by 227,394—pay grade E-9, 2,841; pay grade E-8, 9,059; pay grade E-7, 31,737; pay grade E-6, 58,809; pay grade E-5, 82,957; pay grade E-4, 39,591; and pay grade E-3, 2,400.

Table 14

ENLISTED PERSONNEL PROCUREMENT

	Department of Defense	Army	Navy	Marine Corps	Air Force
TOTAL					
Fiscal Year 1961---	667, 255	267, 098	163, 344	39, 769	197, 044
Fiscal Year 1962---	981, 069	499, 315	198, 413	50, 513	232, 828
<i>Inductions</i>					
Fiscal Year 1961---	60, 293	60, 216	-----	65	12
Fiscal Year 1962---	157, 654	157, 517	-----	65	72
<i>First Enlistments</i>					
Fiscal Year 1961---	359, 524	116, 129	94, 178	30, 454	118, 763
Fiscal Year 1962---	384, 776	127, 063	107, 414	37, 151	113, 148
<i>Immediate Reenlistments</i>					
Fiscal Year 1961---	190, 466	72, 092	37, 782	6, 833	73, 759
Fiscal Year 1962---	240, 312	88, 929	48, 819	9, 674	92, 890
<i>Other Reenlistments</i>					
Fiscal Year 1961---	30, 503	16, 230	8, 770	1, 191	4, 312
Fiscal Year 1962---	25, 998	14, 933	7, 108	656	3, 301
<i>Reserves to Active Duty</i> ¹					
Fiscal Year 1961---	26, 469	2, 431	22, 614	1, 226	198
Fiscal Year 1962---	172, 329	110, 873	35, 072	2, 967	23, 417

¹ Includes National Guard.

Table 15

REENLISTMENT RATES

(Percentage of Eligibles)

	Department of Defense	Army	Navy	Marine Corps	Air Force
REGULARS					
Fiscal Year 1961.....	53.1	57.8	44.3	36.3	57.4
Fiscal Year 1962.....	57.5	52.8	50.5	41.8	71.1
<i>First Term</i>					
Fiscal Year 1961.....	25.3	26.0	27.8	18.3	23.5
Fiscal Year 1962.....	27.4	23.8	28.3	20.0	35.3
<i>Career</i>					
Fiscal Year 1961.....	88.2	87.3	91.0	78.7	88.8
Fiscal Year 1962.....	88.8	86.8	92.2	83.1	89.5
INDUCTEES (Army)					
Fiscal Year 1961.....	-----	11.6	-----	-----	-----
Fiscal Year 1962.....	-----	20.1	-----	-----	-----
FIRST-TERM REGULARS BY OCCUPATIONAL GROUPS					
<i>Ground Combat</i>					
Fiscal Year 1961.....	27.7	32.1	-----	16.9	-----
Fiscal Year 1962.....	26.6	29.0	-----	18.0	-----
<i>Electronics</i>					
Fiscal Year 1961.....	20.9	14.4	27.2	14.1	19.1
Fiscal Year 1962.....	25.5	16.0	25.8	16.2	35.3
<i>Other Technical</i>					
Fiscal Year 1961.....	25.8	21.4	30.9	32.3	25.4
Fiscal Year 1962.....	26.6	17.9	32.7	28.5	33.4
<i>Administrative and Clerical</i>					
Fiscal Year 1961.....	27.9	23.2	38.1	23.0	27.4
Fiscal Year 1962.....	28.8	21.7	36.4	25.5	36.0
<i>Mechanics and Repairmen</i>					
Fiscal Year 1961.....	25.5	24.7	27.9	22.4	22.8
Fiscal Year 1962.....	27.2	22.2	26.9	21.1	37.0
<i>Crafts</i>					
Fiscal Year 1961.....	25.3	20.3	26.7	18.0	28.5
Fiscal Year 1962.....	27.5	16.9	28.4	24.2	33.6
<i>Services</i>					
Fiscal Year 1961.....	32.8	34.2	55.5	21.7	26.9
Fiscal Year 1962.....	33.5	30.1	61.0	22.2	34.8
<i>Miscellaneous</i>					
Fiscal Year 1961.....	20.6	66.9	18.9	9.8	19.7
Fiscal Year 1962.....	24.1	32.0	23.3	21.2	28.5

Table 16

**DEPENDENTS OF MILITARY PERSONNEL
MARCH 31, 1962**

	Department of Defense	Army	Navy	Marine Corps	Air Force
TOTAL-----	4, 051, 161	1, 459, 016	770, 338	181, 447	1, 640, 360
Number Per Military Person-----	1. 43	1. 34	1. 16	0. 97	1. 85
TYPE OF DEPENDENT					
Wives-----	1, 404, 893	500, 812	281, 585	69, 054	553, 442
Children-----	2, 455, 536	832, 988	478, 800	110, 992	1, 032, 756
Parents-----	111, 939	75, 835	7, 118	1, 377	27, 609
Other ¹ -----	78, 793	49, 381	2, 835	24	26, 553
LOCATION OF DEPENDENT					
Continental United States-----	3, 443, 944	1, 172, 698	703, 106	173, 185	1, 394, 955
Alaska-----	42, 023	20, 696	1, 610	73	19, 644
Hawaii-----	63, 889	25, 782	19, 065	5, 147	13, 895
U.S. Territories-----	40, 067	19, 294	7, 577	423	12, 773
Foreign Countries---	461, 238	220, 546	38, 980	2, 619	199, 093

¹ Consists of all other persons related to the military member and who reside in his household and are dependent in fact on him for over half of their support.

Table 17

WOMEN MILITARY PERSONNEL

	Department of Defense	Army	Navy	Marine Corps	Air Force
TOTAL					
June 30, 1961-----	32, 071	12, 811	8, 672	1, 612	8, 976
June 30, 1962-----	32, 213	13, 074	8, 666	1, 697	8, 776
OFFICERS					
June 30, 1961-----	10, 784	4, 251	2, 736	117	3, 680
June 30, 1962-----	11, 168	4, 353	2, 740	121	3, 954
<i>Regulars</i>					
June 30, 1961-----	3, 849	1, 580	1, 378	83	808
June 30, 1962-----	3, 873	1, 498	1, 415	87	873
<i>Reserves</i>					
June 30, 1961-----	6, 935	2, 671	1, 358	34	2, 872
June 30, 1962-----	7, 295	2, 855	1, 325	34	3, 081
ENLISTED					
June 30, 1961-----	21, 165	8, 560	5, 814	1, 495	5, 296
June 30, 1962-----	20, 966	8, 721	5, 847	1, 576	4, 822
OFFICER CANDIDATES					
June 30, 1961-----	122	-----	122	-----	-----
June 30, 1962-----	79	-----	79	-----	-----

Table 18

CIVILIAN PERSONNEL

	Department of Defense	Defense- wide activities ¹	Army	Navy	Air Force
TOTAL					
June 30, 1961---	1, 212, 602	1, 960	502, 326	362, 512	345, 804
June 30, 1962---	1, 240, 669	21, 457	505, 747	364, 933	348, 532
DIRECT HIRE					
June 30, 1961---	1, 042, 407	1, 960	390, 761	346, 310	303, 376
June 30, 1962---	1, 069, 543	21, 457	393, 849	348, 056	306, 181
<i>Salaried</i>					
June 30, 1961---	505, 941	1, 942	214, 093	135, 961	153, 945
June 30, 1962---	525, 354	17, 534	213, 305	136, 152	158, 363
<i>Wage Board</i>					
June 30, 1961---	536, 466	18	176, 668	210, 349	149, 431
June 30, 1962---	544, 189	3, 923	180, 544	211, 904	147, 818
INDIRECT HIRE					
June 30, 1961---	170, 195	-----	111, 565	16, 202	42, 428
June 30, 1962---	171, 126	-----	111, 898	16, 877	42, 351

¹ Data for 1961 and 1962 are not comparable; 1962 totals include new Defense agencies. For details, see tables 19 and 20.

Table 19

OSD-JCS PERSONNEL

	June 30, 1961			June 30, 1962		
	Total	Civilian	Military	Total	Civilian	Military
TOTAL-----	2, 854	1, 772	1, 082	3, 382	1, 883	1, 499
Intermittent Consultants-----	32	32	-----	28	28	-----
Summer Employees-----	40	40	-----	102	102	-----
TOTAL FULL-TIME PERSONNEL-----	2, 782	1, 700	1, 082	3, 252	1, 753	1, 499
OFFICE OF SECRETARY OF DEFENSE-----	1, 811	1, 383	428	1, 911	1, 415	496
Secretary and Deputy Secretary-----	14	10	4	13	9	4
Defense Research and Engineering-----	415	311	104	447	312	135
Comptroller-----	192	189	3	190	188	2
Installations and Logistics-----	237	227	10	230	222	8
International Security Affairs-----	320	217	103	279	196	83
Manpower-----	147	95	52	153	95	58
Public Affairs-----	128	74	54	134	71	63
General Counsel-----	65	60	5	65	63	2
Special Staff Assistants-----	78	46	32	162	91	71
Administrative Support Group-----	215	154	61	238	168	70
JOINT CHIEFS OF STAFF ORGANIZATION-----	971	317	654	1, 341	338	1, 003
Office of the Chairman-----	19	10	9	23	11	12
Joint Staff-----	658	200	458	633	196	437
Other Joint Chiefs of Staff Activities-----	294	107	187	¹ 685	131	¹ 554

¹Includes the Joint Alternate Command Element.

Table 20

OTHER DEFENSE ACTIVITIES PERSONNEL

	June 30, 1961			June 30, 1962		
	Total	Civilian	Military	Total	Civilian	Military
TOTAL-----	487	188	299	27, 596	19, 976	7, 620
Defense Atomic Support Agency ¹ -----				7, 957	2, 082	5, 875
Defense Communications Agency-----	292	95	197	604	163	441
Office of Civil Defense ² -----				1, 219	1, 215	4
Defense Supply Agency ³ -----				16, 501	15, 769	732
Armed Forces Information & Education ¹ -----				489	402	87
Court of Military Appeals-----	37	37		39	39	
Intradepartmental Activities-----	6	6		14	13	1
Interdepartmental Activities-----	44	9	35	59	25	34
International Military Activities-----	108	41	67	132	56	76
Classified Activities-----				582	212	370

¹ Defense Atomic Support Agency personnel were transferred to the "Defense Agencies" account on January 1, 1962, and Armed Forces Information and Education personnel on July 1, 1962.

² Responsibilities for civil defense activities were transferred to the Department of Defense from the Office of Civil and Defense Mobilization effective August 1, 1961.

³ The decision to establish the Defense Supply Agency was announced on August 31, 1961, and the agency started to operate on October 1, 1961.

Table 21

RESERVE PERSONNEL
JUNE 30, 1962

	Total	Officers	Enlisted ¹
DEPARTMENT OF DEFENSE-----	3, 359, 548	796, 140	2, 563, 408
<i>Department of the Army</i> -----	1, 984, 901	354, 034	1, 630, 867
Army National Guard-----	410, 116	37, 613	372, 503
Army Reserve-----	1, 574, 785	316, 421	1, 258, 364
<i>Department of the Navy</i> -----	810, 643	220, 323	590, 320
Naval Reserve-----	624, 046	192, 753	431, 293
Marine Corps Reserve-----	186, 597	27, 570	159, 027
<i>Department of the Air Force</i> -----	564, 004	221, 783	342, 221
Air National Guard-----	71, 347	9, 195	62, 152
Air Force Reserve-----	492, 657	212, 588	280, 069
ON ACTIVE DUTY ² -----	364, 915	182, 052	182, 863
<i>Department of the Army</i> -----	172, 483	73, 479	99, 004
Army National Guard-----	43, 599	4, 991	38, 608
Army Reserve-----	128, 884	68, 488	60, 396
<i>Department of the Navy</i> -----	93, 877	32, 747	61, 130
Naval Reserve-----	84, 861	26, 465	58, 396
Marine Corps Reserve-----	9, 016	³ 6, 282	2, 734
<i>Department of the Air Force</i> -----	98, 555	75, 826	22, 729
Air National Guard-----	21, 028	2, 917	18, 111
Air Force Reserve-----	77, 527	72, 909	4, 618
NOT ON ACTIVE DUTY-----	2, 994, 633	614, 088	2, 380, 545
<i>Department of the Army</i> -----	1, 812, 418	280, 555	1, 531, 863
Army National Guard-----	366, 517	32, 622	333, 895
Army Reserve-----	1, 445, 901	247, 933	1, 197, 968
<i>Department of the Navy</i> -----	716, 766	187, 576	529, 190
Naval Reserve-----	539, 185	166, 288	372, 897
Marine Corps Reserve-----	177, 581	21, 288	156, 293
<i>Department of the Air Force</i> -----	465, 449	145, 957	319, 492
Air National Guard-----	50, 319	6, 278	44, 041
Air Force Reserve-----	415, 130	139, 679	275, 451
COAST GUARD RESERVE-----	32, 022	3, 667	28, 355
On Active Duty-----	688	574	114
Not On Active Duty-----	31, 334	3, 093	28, 241

¹ Includes officer candidates.² On continuous or extended active duty, and included in count of military personnel on active duty. Excludes reserves undergoing 2-week annual, 6-month basic, etc., reserve training.³ Includes 11 officers on duty with other Government agencies who are excluded from summaries of active duty strength.

Table 22

RESERVE PERSONNEL ON ACTIVE DUTY ¹
JUNE 30, 1961–AUGUST 31, 1962

	Total Department of Defense	Army		Naval Reserve	Marine Corps Reserve	Air Force	
		National Guard	Army Reserve			Air National Guard	Air Force Reserve
1961							
Jun 30	209, 261	1, 401	58, 762	67, 599	7, 275	225	73, 999
Jul 31	211, 147	1, 355	59, 092	70, 141	6, 936	227	73, 396
Aug 31	211, 290	1, 307	58, 969	70, 495	6, 843	229	73, 447
Sep 30	216, 020	1, 907	60, 798	72, 699	6, 736	233	73, 647
Oct 31	346, 075	44, 753	116, 448	78, 879	8, 705	19, 549	77, 741
Nov 30	364, 498	45, 353	127, 826	81, 696	8, 830	21, 960	78, 833
Dec 31	368, 915	45, 191	130, 848	82, 890	8, 772	21, 863	79, 351
1962							
Jan 31	371, 985	45, 137	133, 164	83, 512	8, 868	21, 672	79, 632
Feb 28	372, 872	44, 840	132, 393	85, 189	8, 856	21, 391	80, 203
Mar 31	373, 646	44, 567	132, 232	85, 449	8, 992	21, 379	81, 027
Apr 30	371, 734	43, 847	131, 749	85, 769	8, 895	21, 208	80, 266
May 31	367, 501	44, 086	129, 796	85, 151	8, 864	21, 148	78, 456
Jun 30	364, 915	43, 599	128, 884	84, 861	9, 016	21, 028	77, 527
Jul 31	359, 699	42, 545	127, 692	84, 198	9, 211	18, 588	77, 465
Aug 31	236, 558	3, 079	67, 369	80, 379	8, 886	3, 180	73, 665

¹ Continuous or extended active duty. Excludes active duty for reserve training.

Table 23

RESERVE PERSONNEL NOT ON ACTIVE DUTY

	Total	Ready Reserve	Standby Reserve	Retired Reserve
DEPARTMENT OF DEFENSE				
June 30, 1961.....	3, 756, 246	2, 397, 639	1, 187, 474	171, 133
June 30, 1962.....	2, 994, 633	2, 000, 084	796, 398	198, 151
DEPARTMENT OF THE ARMY				
June 30, 1961.....	2, 294, 202	1, 428, 623	772, 543	93, 036
June 30, 1962.....	1, 812, 418	1, 208, 007	496, 762	107, 649
<i>Army National Guard</i>				
June 30, 1961.....	400, 455	400, 455	-----	-----
June 30, 1962.....	366, 517	366, 517	-----	-----
<i>Army Reserve</i>				
June 30, 1961.....	1, 893, 747	1, 028, 168	772, 543	93, 036
June 30, 1962.....	1, 445, 901	841, 490	496, 762	107, 649
DEPARTMENT OF THE NAVY				
June 30, 1961.....	891, 137	684, 250	149, 338	57, 549
June 30, 1962.....	716, 766	538, 282	114, 870	63, 614
<i>Naval Reserve</i>				
June 30, 1961.....	648, 446	474, 761	123, 148	50, 537
June 30, 1962.....	539, 185	378, 303	104, 986	55, 896
<i>Marine Corps Reserve</i>				
June 30, 1961.....	242, 691	209, 489	26, 190	7, 012
June 30, 1962.....	177, 581	159, 979	9, 884	7, 718
DEPARTMENT OF THE AIR FORCE				
June 30, 1961.....	570, 907	284, 766	265, 593	20, 548
June 30, 1962.....	465, 449	253, 795	184, 766	26, 888
<i>Air National Guard</i>				
June 30, 1961.....	70, 895	70, 895	-----	-----
June 30, 1962.....	50, 319	50, 319	-----	-----
<i>Air Force Reserve</i>				
June 30, 1961.....	500, 012	213, 871	265, 593	20, 548
June 30, 1962.....	415, 130	203, 476	184, 766	26, 888
COAST GUARD RESERVE				
June 30, 1961.....	33, 166	30, 272	2, 384	510
June 30, 1962.....	31, 334	27, 520	3, 281	533

Table 24

RESERVE PERSONNEL IN PAID STATUS

	Total in paid status	Paid drill training			Paid ac- tive duty training only
		Total	Drill pay status	Active duty basic training	
DEPARTMENT OF DEFENSE					
June 30, 1961-----	1, 085, 665	1, 004, 760	936, 916	67, 844	80, 905
June 30, 1962-----	958, 013	889, 117	825, 716	63, 401	68, 896
DEPARTMENT OF THE ARMY					
June 30, 1961-----	754, 909	695, 603	634, 766	60, 837	59, 306
June 30, 1962-----	670, 745	622, 426	568, 380	54, 046	48, 319
<i>Army National Guard</i>					
June 30, 1961-----	393, 807	393, 807	363, 403	30, 404	-----
June 30, 1962-----	360, 970	360, 970	323, 883	37, 087	-----
<i>Army Reserve</i>					
June 30, 1961-----	361, 102	301, 796	271, 363	30, 433	59, 306
June 30, 1962-----	309, 775	261, 456	244, 497	16, 959	48, 319
DEPARTMENT OF THE NAVY					
June 30, 1961-----	183, 923	173, 777	170, 109	3, 668	10, 146
June 30, 1962-----	167, 787	157, 928	152, 052	5, 876	9, 859
<i>Naval Reserve</i>					
June 30, 1961-----	137, 948	129, 948	129, 272	676	8, 000
June 30, 1962-----	119, 179	111, 280	110, 496	784	7, 899
<i>Marine Corps Reserve</i>					
June 30, 1961-----	45, 975	43, 829	40, 837	2, 992	2, 146
June 30, 1962-----	48, 608	46, 648	41, 556	5, 092	1, 960
DEPARTMENT OF THE AIR FORCE					
June 30, 1961-----	146, 833	135, 380	132, 041	3, 339	11, 453
June 30, 1962-----	119, 481	108, 763	105, 284	3, 479	10, 718
<i>Air National Guard</i>					
June 30, 1961-----	70, 895	70, 895	69, 138	1, 757	-----
June 30, 1962-----	50, 319	50, 319	48, 753	1, 566	-----
<i>Air Force Reserve</i>					
June 30, 1961-----	75, 938	64, 485	62, 903	1, 582	11, 453
June 30, 1962-----	69, 162	58, 444	56, 531	1, 913	10, 718
COAST GUARD RE- SERVE					
June 30, 1961-----	16, 165	15, 118	13, 698	1, 420	1, 047
June 30, 1962-----	16, 965	16, 202	15, 102	1, 100	763

Table 25

RESERVE ACTIVE DUTY BASIC TRAINING PROGRAM ¹

	Active duty training status	Fiscal year 1961	Fiscal year 1962	Cumulative August 10, 1955 through June 30, 1962
DEPARTMENT OF DEFENSE				
<i>Officers</i> —Total-----	Entered----	4, 313	779	36, 012
	Completed--	4, 738	991	31, 747
Army Reserve-----	Entered----	4, 253	778	35, 712
	Completed--	4, 623	984	31, 472
Air Force Reserve-----	Entered----	60	1	300
	Completed--	115	7	275
<i>Enlisted</i> —Total-----	Entered----	126, 348	92, 462	657, 906
	Completed--	118, 503	84, 653	559, 135
Army National Guard--	Entered----	62, 278	48, 705	294, 341
	Completed--	62, 492	37, 417	240, 546
Army Reserve-----	Entered----	45, 869	24, 239	244, 012
	Completed--	37, 795	31, 901	215, 581
Naval Reserve-----	Entered----	1, 424	1, 534	4, 009
	Completed--	810	1, 236	3, 034
Marine Corps Reserve--	Entered----	7, 061	9, 207	46, 648
	Completed--	6, 627	6, 072	35, 966
Air National Guard----	Entered----	6, 519	5, 768	49, 803
	Completed--	7, 300	5, 511	47, 170
Air Force Reserve-----	Entered----	3, 197	3, 009	19, 093
	Completed--	3, 479	2, 516	16, 838
COAST GUARD RESERVE				
<i>Enlisted</i> —Total-----	Entered----	2, 371	2, 205	15, 598
	Completed--	2, 470	2, 420	13, 596

¹ Three- to 6-month active duty reserve training, including Air National Guard 8-week basic training, under provisions of Section 262 of the Armed Forces Reserve Act of 1952, as amended.

Table 26

MEDICAL CARE IN DEFENSE FACILITIES

	Department of Defense	Army	Navy	Air Force
HOSPITAL ADMISSIONS				
ALL PERSONNEL				
Fiscal Year				
1961-----	1, 146, 347	439, 299	311, 362	395, 686
Fiscal Year				
1962-----	1, 199, 150	480, 996	321, 022	397, 132
<i>Active Duty Per- sonnel</i>				
Fiscal Year				
1961-----	593, 105	278, 820	158, 796	155, 489
Fiscal Year				
1962-----	532, 282	216, 442	165, 935	149, 905
<i>Dependents & Others</i>				
Fiscal Year				
1961-----	553, 242	160, 479	152, 566	240, 197
Fiscal Year				
1962-----	666, 868	264, 554	155, 087	247, 227
OUTPATIENT VISITS				
ALL PERSONNEL				
Fiscal Year				
1961-----	40, 681, 715	¹ 14,811,000	11, 885, 898	13, 984, 817
Fiscal Year				
1962-----	44, 547, 054	17, 496, 829	12, 456, 629	14, 593, 596
<i>Active Duty Per- sonnel</i>				
Fiscal Year				
1961-----	18, 208, 240	¹ 6, 411, 000	6, 304, 261	5, 492, 979
Fiscal Year				
1962-----	20, 554, 735	8, 356, 406	6, 655, 118	5, 543, 211
<i>Dependents & Others</i>				
Fiscal Year				
1961-----	22, 473, 475	¹ 8, 400, 000	5, 581, 637	8, 491, 838
Fiscal Year				
1962-----	23, 992, 319	9, 140, 423	5, 801, 511	9, 050, 385

¹ Partially estimated.

Table 27

DEPENDENTS MEDICARE PROGRAM ¹

	Department of Defense	Army	Navy	Air Force
PHYSICIANS' CLAIMS PAID				
<i>Number</i>				
Fiscal Year 1961 --	330, 239	84, 926	124, 875	120, 438
Fiscal Year 1962 --	379, 704	114, 170	139, 314	126, 220
<i>Amount (In Dollars)</i>				
Fiscal Year 1961 --	25, 470, 119	6, 615, 390	9, 636, 907	9, 217, 822
Fiscal Year 1962 --	29, 148, 574	8, 800, 195	10, 693, 933	9, 654, 446
CIVILIAN HOSPITAL CLAIMS PAID				
<i>Number</i>				
Fiscal Year 1961 --	229, 547	64, 133	84, 227	81, 187
Fiscal Year 1962 --	271, 645	89, 520	94, 165	87, 960
<i>Amount (In Dollars)</i>				
Fiscal Year 1961 --	31, 726, 795	8, 837, 929	11, 927, 537	10, 961, 329
Fiscal Year 1962 --	39, 130, 919	12, 524, 609	14, 086, 963	12, 519, 347

¹ As of January 31, 1963. Due to time lag in billings, the above data cannot be considered complete.

Table 28

PROPERTY HOLDINGS

(Acquisition Cost in Billions of Dollars)

	Department of Defense	Army	Navy	Air Force	Defense agencies
ALL TYPES					
June 30, 1961-----	158.5	38.8	58.4	61.2	-----
June 30, 1962-----	164.8	36.4	60.4	66.0	2.0
PERSONAL PROPERTY					
June 30, 1961-----	¹ 122.0	28.3	48.1	¹ 45.7	-----
June 30, 1962-----	¹ 127.7	25.7	49.9	¹ 50.1	2.0
<i>Materiel in Use</i>					
June 30, 1961-----	67.6	7.9	30.3	29.3	-----
June 30, 1962-----	73.8	8.7	33.1	32.0	(²)
<i>In Supply System</i>					
June 30, 1961-----	40.8	15.8	12.4	12.5	-----
June 30, 1962-----	40.7	13.2	12.6	13.1	1.8
<i>Plant Equipment</i>					
June 30, 1961-----	7.6	3.1	3.2	1.3	-----
June 30, 1962-----	8.4	3.3	3.1	1.9	0.1
<i>Industrial Funds</i>					
June 30, 1961-----	³ 1.0	0.1	³ 0.9	(²)	-----
June 30, 1962-----	³ 0.3	0.1	³ 0.2	(²)	(²)
<i>Excess and Surplus</i>					
June 30, 1961-----	3.5	1.2	1.2	1.0	-----
June 30, 1962-----	⁴ 2.0	⁴ 0.3	0.9	0.7	(²)
REAL PROPERTY					
June 30, 1961-----	34.0	10.3	9.7	14.0	-----
June 30, 1962-----	35.4	10.5	10.0	14.8	-----
CONSTRUCTION IN PROGRESS					
June 30, 1961-----	2.4	0.3	0.7	1.5	-----
June 30, 1962-----	1.8	0.2	0.5	1.1	-----

¹ Includes \$1.5 billion for June 30, 1961, and \$2.5 billion for June 30, 1962, not separately itemized, of personal property provided to Air Force contractors from other than the Air Force Supply System Inventories.

² Less than \$50 million.

³ Data not comparable. Navy totals for June 30, 1961, include funds for ship construction and modernization carried under "Materiel in Use" for June 30, 1962.

⁴ Excludes Army excess, surplus, and foreign excess property not yet transferred from "Supply System" to "Excess and Surplus."

Table 29

CONTRACT AWARDS BY PROGRAM

(Net in Millions of Dollars)

	Fiscal year 1961		Fiscal year 1962	
	Amount	Percent	Amount	Percent
TOTAL.....	25, 584	100. 0	29, 255	100. 0
MAJOR HARD GOODS.....	17, 158	67. 1	19, 404	66. 3
Aircraft.....	5, 042	19. 7	5, 265	18. 0
Missile Systems.....	6, 011	23. 5	6, 849	23. 4
Ships.....	1, 445	5. 7	1, 559	5. 3
Tank-Automotive.....	656	2. 6	1, 120	3. 8
Weapons.....	147	0. 6	224	0. 8
Ammunition.....	574	2. 2	930	3. 2
Electronics-Communication.....	3, 283	12. 8	3, 457	11. 8
SERVICES.....	1, 694	6. 6	1, 826	6. 3
ALL OTHER.....	6, 732	26. 3	8, 024	27. 4
Subsistence.....	571	2. 2	703	2. 4
Textiles and Clothing.....	277	1. 0	423	1. 5
Fuels and Lubricants.....	1, 147	4. 5	1, 261	4. 3
Miscellaneous Hard Goods.....	1, 064	4. 2	1, 320	4. 5
Construction.....	1, 377	5. 4	1, 385	4. 7
Actions of less than \$10,000.....	2, 296	9. 0	2, 932	10. 0

Table 30

CONTRACT AWARDS BY TYPE OF CONTRACTOR

(Net in Millions of Dollars)

	Department of Defense	Army	Navy	Air Force	Defense Supply Agency ¹
TOTAL					
Fiscal Year 1961.....	25, 584	6, 273	7, 935	11, 376	-----
Fiscal Year 1962.....	29, 255	7, 556	8, 767	11, 769	1, 163
INTRAGOVERNMENTAL					
Fiscal Year 1961.....	881	303	189	389	-----
Fiscal Year 1962.....	1, 155	407	216	471	61
WORK OUTSIDE U.S.					
Fiscal Year 1961.....	1, 280	622	433	225	-----
Fiscal Year 1962.....	1, 454	680	403	275	96
EDUCATIONAL & NON-PROFIT INSTITUTIONS					
Fiscal Year 1961.....	432	56	139	236	-----
Fiscal Year 1962.....	497	65	147	285	(²)
BUSINESS FIRMS FOR WORK IN U.S.					
Fiscal Year 1961.....	22, 992	5, 291	7, 174	10, 526	-----
Fiscal Year 1962.....	26, 147	6, 403	8, 001	10, 738	1, 005
<i>Small Business Firms</i>					
Fiscal Year 1961.....	3, 657	1, 568	1, 112	977	-----
Fiscal Year 1962.....	4, 622	1, 761	1, 371	1, 026	465
<i>Small Business Percentage</i>					
Fiscal Year 1961.....	15. 9%	29. 6%	15. 5%	9. 3%	-----
Fiscal Year 1962.....	17. 7%	27. 5%	17. 1%	9. 6%	46. 2%

¹ Awards since January 1, 1962, for procurement of common supply items transferred to DSA from the military departments.

² Awards totaled \$53,000.

Table 31

CONTRACT AWARDS BY PRICING PROVISION

(Net in Millions of Dollars)

	Fiscal year 1961		Fiscal year 1962	
	Amount	Percent	Amount	Percent
TOTAL.....	25, 584	-----	29, 255	-----
Intragovernmental Orders ¹	881	-----	1, 155	-----
Actions less than \$10,000 ²	1, 846	-----	2, 319	-----
TOTAL MINUS SUBTOTALS.....	22, 857	100. 0	25, 780	100. 0
<i>Fixed Price</i>	13, 243	57. 9	15, 667	60. 8
Firm.....	7, 211	31. 5	9, 795	38. 0
Redeterminable.....	2, 403	10. 5	1, 898	7. 4
Incentive.....	2, 554	11. 2	3, 097	12. 0
Escalation.....	1, 075	4. 7	877	3. 4
<i>Cost Reimbursement</i>	9, 614	42. 1	10, 113	39. 2
No Fee.....	467	2. 0	595	2. 3
Fixed Fee.....	8, 362	36. 6	8, 385	32. 5
Incentive Fee.....	724	3. 2	1, 061	4. 1
Time and Materials.....	45	0. 2	57	0. 2
Labor-Hour.....	15	0. 1	15	0. 1

¹ Pricing provisions not applicable.² Data on pricing provisions are not obtained for actions of less than \$10,000.

Table 32

CONTRACT AWARDS BY COMPETITIVE STATUS

(Net in Millions of Dollars)

	Fiscal year 1961		Fiscal year 1962	
	Amount	Percent	Amount	Percent
TOTAL -----	25, 584	-----	29, 255	-----
Intragovernmental Orders ¹ -----	881	-----	1, 155	-----
TOTAL MINUS SUBTOTAL -----	24, 703	100. 0	28, 099	100. 0
PRICE COMPETITION -----	8, 130	32. 9	10, 003	35. 6
Formally Advertised -----	2, 932	11. 9	3, 545	12. 6
Restricted to Small Business and Labor Surplus Areas -----	969	3. 9	1, 421	5. 1
Open Market Purchase of \$2,500 or less within U.S. ² -----	919	3. 7	1, 069	3. 8
Other Price Competition ³ -----	3, 310	13. 4	3, 967	14. 1
OTHER THAN PRICE COMPE- TITION -----	15, 964	64. 7	18, 096	64. 4
Design or Technical Competition -----	10, 216	41. 4	1, 086	3. 9
Follow-on Contracts after Price or Design Competition -----			10, 459	37. 2
One-Source Solicitation -----	5, 749	23. 3	6, 552	23. 2
STATUS UNKNOWN ⁵ -----	609	2. 4	-----	-----

¹ Competitive status not applicable.² Price competition required on actions of \$250 or more and assumed for actions below \$250.³ Contracts awarded through negotiation after requesting proposals from two or more suppliers.⁴ Data for 1961 did not distinguish between "Design or Technical Competition" and "Follow-on Contracts after Price or Design Competition."⁵ Includes actions between \$2,500 and \$10,000, except set-asides, and actions of less than \$2,500 that did not involve open market purchases. These were not reported by competitive status during fiscal year 1961.

Table 33

CONTRACT AWARDS BY REGION AND STATE ¹
FISCAL YEAR 1962

	Millions of dollars	Percent of U.S.
NEW ENGLAND.....	2, 736	10. 8
Maine.....	80	0. 3
New Hampshire.....	59	0. 2
Vermont.....	16	0. 1
Massachusetts.....	1, 310	5. 2
Rhode Island.....	58	0. 2
Connecticut.....	1, 213	4. 8
MIDDLE ATLANTIC.....	4, 684	18. 8
New York.....	2, 669	10. 7
New Jersey.....	1, 063	4. 3
Pennsylvania.....	952	3. 8
SOUTH ATLANTIC.....	2, 594	10. 5
Delaware.....	47	0. 2
Maryland.....	469	1. 9
District of Columbia.....	182	0. 7
Virginia.....	446	1. 8
West Virginia.....	134	0. 5
North Carolina.....	269	1. 1
South Carolina.....	65	0. 3
Georgia.....	337	1. 4
Florida.....	645	2. 6
SOUTH CENTRAL.....	1, 953	7. 7
Kentucky.....	44	0. 2
Tennessee.....	184	0. 7
Alabama.....	154	0. 6
Mississippi.....	100	0. 4
Arkansas.....	85	0. 3
Louisiana.....	244	1. 0
Oklahoma.....	136	0. 5
Texas.....	1, 006	4. 0

See footnotes at end of table.

Table 33—Continued

CONTRACT AWARDS BY REGION AND STATE ¹
FISCAL YEAR 1962

	Millions of dollars	Percent of U.S.
EAST NORTH CENTRAL.....	3, 168	12. 6
Ohio.....	1, 129	4. 5
Indiana.....	571	2. 3
Illinois.....	531	2. 1
Michigan.....	678	2. 7
Wisconsin.....	259	1. 0
WEST NORTH CENTRAL.....	1, 682	6. 8
Minnesota.....	297	1. 2
Iowa.....	179	0. 7
Missouri.....	546	2. 2
North Dakota.....	100	0. 4
South Dakota.....	113	0. 5
Nebraska.....	53	0. 2
Kansas.....	394	1. 6
MOUNTAIN.....	1, 166	4. 6
Montana.....	31	0. 1
Idaho.....	26	0. 1
Wyoming.....	23	0. 1
Colorado.....	565	2. 3
New Mexico.....	61	0. 2
Arizona.....	153	0. 6
Utah.....	299	1. 2
Nevada.....	8	(²)
PACIFIC.....	6, 960	27. 8
Washington.....	921	3. 7
Oregon.....	46	0. 2
California.....	5, 993	23. 9
ALASKA and HAWAII.....	95	0. 4
Alaska.....	63	0. 3
Hawaii.....	32	0. 1

¹ Includes supply, RDT&E, services, construction, and facility contracts of \$10,000 or more within the United States, totaling \$25,039 million.

² Less than 0.05 percent.

Table 34

DEFENSE-WIDE SUPPLY

	Line items assigned ¹	Net inventory investment (millions of dollars)	Personnel on board	Annual sales (millions of dollars)	Annual obligations (millions of dollars)
SUPPLY CENTERS IN OPERATION ²					
June 30, 1961-----	143, 782	2, 256. 1	5, 976	2, 287. 7	2, 195. 7
June 30, 1962-----	260, 541	2, 200. 0	11, 356	2, 692. 6	2, 746. 6
<i>Clothing and Textiles</i>					
June 30, 1961-----	28, 623	1, 305. 7	1, 292	316. 1	251. 0
June 30, 1962-----	27, 480	1, 145. 4	4, 606	438. 7	376. 4
<i>General Supplies</i>					
June 30, 1961-----	89, 242	81. 3	1, 276	12. 0	33. 0
June 30, 1962-----	101, 801	124. 5	2, 878	105. 2	125. 9
<i>Industrial Supplies ³</i>					
June 30, 1961-----	15, 166	84. 0	1, 127	39. 8	40. 4
June 30, 1962-----	120, 355	132. 1	1, 532	104. 4	112. 9
<i>Medical Supplies</i>					
June 30, 1961-----	8, 385	246. 1	458	82. 5	64. 1
June 30, 1962-----	8, 638	221. 0	487	94. 0	103. 0
<i>Petroleum ⁴</i>					
June 30, 1961-----	981	437. 0	185	1, 135. 0	1, 119. 9
June 30, 1962-----	1, 002	461. 0	188	1, 150. 2	1, 178. 6
<i>Subsistence</i>					
June 30, 1961-----	1, 385	102. 0	1, 638	702. 3	687. 3
June 30, 1962-----	1, 265	116. 0	1, 665	800. 1	849. 8
SUPPLY CENTERS BEING ORGANIZED ⁵					
Automotive Supplies---	254, 000	94. 7	964	19. 3	5. 8
Construction Supplies--	246, 000	102. 9	2, 663	71. 0	73. 6
Electronics-----	700, 000	402. 4	4, 534	100. 0	80. 0

¹ The totals for line items assigned are not identical with those for line items centrally managed, which include only the items assigned to DSA after careful review for future management responsibility.

² Operated as Single Manager agencies until transferred to DSA during the second half of fiscal year 1962.

³ Not fully operational on June 30, 1962. It is estimated that a total of 674,700 line items will be assigned to the Industrial Supply Center.

⁴ The Defense Petroleum Supply Center differs from the other centers in that the military Services retain ownership of their wholesale stocks of petroleum supplies. Hence, the amounts shown for "Net Inventory Investment," "Annual Sales," and "Annual Obligations" represent estimates for the separate Services. Beginning on October 1, 1962, the center will assume ownership of packaged petroleum products—approximately 900 line items—estimated to have an inventory value of \$7.7 million on June 30, 1963.

⁵ Defense-wide responsibility for construction and automotive supplies was established on April 13, 1961, and for electronic supplies on December 27, 1961. The supply centers for these commodities are scheduled to be fully operational on November 1, 1962, July 1, 1963, and September 1, 1964, respectively. The Defense Construction Supply Center was partially operational for the last 2 months of fiscal year 1962, managing 12,000 line items with sales of \$0.5 million during that period and with an inventory valued at \$7.6 million on June 30, 1962.

Table 35

DEFENSE-WIDE TRANSPORTATION SERVICES

	Military Air Transport Service ¹	Military Sea Transportation Service ²	Defense Traffic Management Service ³
PASSENGERS CARRIED			
Fiscal Year 1961-----	1, 172, 000	406, 000	4, 085, 000
Fiscal Year 1962-----	1, 171, 000	440, 000	4, 198, 000
CARGO CARRIED (In Short Tons)			
Fiscal Year 1961-----	160, 000	23, 589, 000	22, 289, 000
Fiscal Year 1962-----	182, 000	25, 810, 000	24, 001, 000
<i>Dry Cargo Tonnage</i>			
Fiscal Year 1961-----	160, 000	⁴ 5, 684, 000	8, 417, 000
Fiscal Year 1962-----	182, 000	⁴ 6, 667, 000	9, 338, 000
<i>Petroleum Tonnage</i>			
Fiscal Year 1961-----	-----	⁵ 17, 905, 000	13, 872, 000
Fiscal Year 1962-----	-----	⁵ 19, 143, 000	14, 663, 000
EXPENSES (In Millions of Dollars)			
Fiscal Year 1961-----	311	350	⁶ 507
Fiscal Year 1962-----	389	425	⁶ 582
<i>Payments for Commercial Services</i>			
Fiscal Year 1961-----	113	261	500
Fiscal Year 1962-----	185	331	574

¹ Responsible to the Single Manager for Airlift Service, the Secretary of the Air Force.

² Responsible to the Single Manager for Ocean Transportation, the Secretary of the Navy.

³ Established in 1956 as the Military Traffic Management Agency (MTMA) responsible to the Single Manager for Traffic Management within the United States, the Secretary of the Army. Responsibility for this function was assumed by the Director, Defense Supply Agency, on January 1, 1962, on which date MTMA was redesignated the Defense Traffic Management Service (DTMS).

⁴ Reported by MSTs in measurement tons—10,800,000 MT in 1961 and 12,667,000 MT in 1962—and converted to short tons on an estimated ratio of 1.9 to 1.

⁵ Reported by MSTs in long tons—15,987,000 in 1961 and 17,092,000 in 1962—and converted to short tons on a ratio of 1 to 1.12.

⁶ Includes payments made by the military Services to commercial carriers for transportation and the administrative costs of the traffic management agency.

Table 36

FEDERAL CATALOG SYSTEM

	Fiscal year 1961		Fiscal year 1962	
FEDERAL CATALOG				
<i>Number of Items at Beginning of Year</i> -----	3, 678, 000		3, 914, 000	
Number of Items Added----	+ 529, 000		+ 639, 000	
Number of Items Deleted----	- 294, 000		- 393, 000	
Net Increase-----	236, 000		245, 000	
<i>Number of Items at End of Year</i> --	3, 914, 000		4, 160, 000	
Department of Defense Items-----	3, 790, 000		3, 966, 000	
Other Agency Items-----	124, 000		193, 000	
<hr/>				
	June 30, 1961		June 30, 1962	
	Number	Percent	Number	Percent
INTER-SERVICE USE				
<i>Army</i>				
Items in Use-----	1, 010, 000	-----	1, 039, 000	-----
Items Also Used by Other Services-----	420, 000	41. 5	427, 000	41. 1
<i>Navy</i>				
Items in Use-----	1, 187, 000	-----	1, 240, 000	-----
Items Also Used by Other Services-----	258, 000	21. 8	284, 000	22. 9
<i>Marine Corps</i>				
Items in Use-----	282, 000	-----	278, 000	-----
Items Also Used by Other Services-----	179, 000	63. 5	180, 000	64. 6
<i>Air Force</i>				
Items in Use-----	2, 002, 000	-----	2, 131, 000	-----
Items Also Used by Other Services-----	430, 000	21. 5	445, 000	20. 9

Table 37

STORAGE FACILITIES

(In Millions of Square Feet)

	Fiscal year 1961	Fiscal year 1962
COVERED SPACE ¹		
Beginning of Fiscal Year.....	380. 5	370. 0
Net Reduction.....	-10. 5	-25. 7
End of Fiscal Year.....	370. 0	344. 3
OCCUPIED OPEN SPACE ²		
Beginning of Fiscal Year.....	134. 5	123. 3
Net Reduction.....	-11. 2	-19. 6
End of Fiscal Year.....	123. 3	103. 7
CROSS-SERVICING OF COVERED SPACE ¹.....	10. 7	9. 6
Among Defense Agencies ³	1. 3	2. 2
National Stockpile.....	8. 5	7. 2
Other Government Agencies ³	0. 9	0. 2
CROSS-SERVICING OF OCCUPIED OPEN SPACE ²...	20. 3	19. 1
Among Defense Agencies ³	0. 2	0. 3
National Stockpile.....	20. 1	18. 8
Other Government Agencies ³	(⁴)	(⁴)

¹ Includes the gross interior area of buildings used for storage or in support of storage activities.² Includes the open area actually utilized for storage, exclusive of roadways, storage support activities, etc.³ Data for 1961 and 1962 are not comparable, since civil defense activities were included in the "Other Government Agencies" category in 1961 and in the "Among Defense Agencies" category in 1962.⁴ Less than 500,000 square feet.

Table 38

EXCESS AND SURPLUS PROPERTY

(In Millions of Dollars)

	Fiscal year 1961	Fiscal year 1962
BEGINNING INVENTORY ¹	4, 480	3, 510
Gross Generations	7, 478	5, 227
Total Available for Disposition	11, 958	8, 737
Gross Dispositions	8, 444	5, 960
CLOSING INVENTORY	3, 514	2, 777
GROSS DISPOSITIONS ²	8, 444	5, 960
Reutilized Within Department of Defense ³	1, 823	1, 967
Intra-Service	(1, 521)	(1, 777)
Inter-Service	(131)	(122)
Military Assistance Program	(171)	(68)
Reutilized in Other Federal Agencies	178	203
Donations	276	258
Sold as Usable Property	1, 771	1, 236
Designated for Sale as Scrap	4, 332	2, 233
Other Dispositions	20	13
Destroyed or Abandoned	44	50
CASH PROCEEDS REALIZED	169	138

¹ Changes in prices of items and final audit of the number of items account for the difference between "Closing Inventory" and "Beginning Inventory." This adjustment involved a reduction of \$47 million in the "Beginning Inventory" for fiscal year 1961 and of \$4 million in that for fiscal year 1962.

² Does not include disposition of ships—\$524 million and \$145 million, respectively, for fiscal years 1961 and 1962.

³ Does not include property reutilized before entering disposal channels—evaluated at \$616 million and \$717 million, respectively, in fiscal years 1961 and 1962.

Table 39

REAL PROPERTY HOLDINGS

	Department of Defense	Army	Navy	Air Force
ACQUISITION COST (In Millions of Dollars)				
June 30, 1961-----	34, 038	10, 303	9, 704	14, 031
June 30, 1962-----	35, 378	10, 533	10, 025	14, 821
<i>United States</i>				
June 30, 1961-----	28, 640	9, 402	8, 414	10, 824
June 30, 1962-----	29, 681	9, 594	8, 467	11, 620
<i>U.S. Possessions</i>				
June 30, 1961-----	1, 160	140	680	340
June 30, 1962-----	1, 215	139	745	331
<i>Foreign Countries</i>				
June 30, 1961-----	4, 238	761	610	2, 867
June 30, 1962-----	4, 482	800	813	2, 869
ACREAGE (In Millions of Acres)				
June 30, 1961-----	29. 1	10. 7	5. 4	12. 9
June 30, 1962-----	30. 6	12. 2	5. 3	13. 2
BY LOCATION				
<i>United States</i>				
June 30, 1961-----	26. 6	10. 1	5. 0	11. 5
June 30, 1962-----	27. 3	11. 6	4. 8	11. 0
<i>U.S. Possessions</i>				
June 30, 1961-----	0. 2	0. 1	0. 1	0. 1
June 30, 1962-----	0. 2	0. 1	0. 1	(¹)
<i>Foreign Countries</i>				
June 30, 1961-----	2. 2	0. 5	0. 4	1. 3
June 30, 1962-----	3. 1	0. 5	0. 4	2. 2
BY TYPE OF CONTROL				
<i>Owned Outright</i>				
June 30, 1961-----	7. 1	3. 9	1. 4	1. 8
June 30, 1962-----	6. 9	3. 9	1. 3	1. 8
<i>Public Domain and Public Lands</i>				
June 30, 1961-----	16. 0	4. 7	2. 3	8. 9
June 30, 1962-----	16. 7	6. 1	2. 3	8. 3
<i>Leased, Easements, etc.</i>				
June 30, 1961-----	3. 9	1. 7	1. 3	0. 9
June 30, 1962-----	4. 0	1. 6	1. 3	1. 0
<i>Foreign Rights</i>				
June 30, 1961-----	2. 1	0. 4	0. 4	1. 3
June 30, 1962-----	3. 0	0. 5	0. 4	2. 1

¹ Air Force controlled only 40,000 acres in U.S. possessions on June 30, 1962, as compared to 52,000 acres on June 30, 1961.

Table 40

FAMILY HOUSING

	June 30, 1961	June 30, 1962
TOTAL UNITS—MILITARY OWNED AND CONTROLLED.....	362, 183	375, 726
<i>Adequate</i>	303, 535	325, 114
Capehart.....	82, 961	101, 895
Wherry (Acquired).....	68, 236	69, 156
Leased.....	6, 680	5, 696
Surplus Commodity ¹	8, 724	9, 404
Other Public Quarters.....	119, 813	123, 460
Wherry (Privately Owned).....	12, 125	11, 039
Rental Guaranty.....	4, 996	4, 464
<i>Inadequate</i>	58, 648	50, 612
UNITS UNDER CONSTRUCTION.....	26, 604	13, 341
Appropriated Funds.....	719	1, 628
Capehart.....	25, 154	11, 606
Surplus Commodity ¹	731	107

¹Housing constructed overseas primarily with funds derived from sale of surplus agricultural commodities.

Table 41

MILITARY ASSISTANCE, 1950-62

(In Millions of Dollars)

	Appropriations	Transfers, reimbursements, and rescissions	Available for obligation	Obligations and reservations	Expenditures
TOTAL, 1950-62 ¹ _ _	31, 577. 8	-1, 501. 0	30, 076. 8	30, 012. 5	27, 292. 1
Fiscal Year 1950 _ _ _ _	1, 314. 0	0. 1	1, 314. 1	1, 101. 0	51. 7
1951 _ _ _ _	5, 222. 5	0. 9	5, 223. 4	4, 676. 9	934. 2
1952 _ _ _ _	5, 744. 0	-476. 4	5, 267. 6	5, 591. 2	2, 385. 9
1953 _ _ _ _	4, 219. 8	-237. 9	3, 981. 9	2, 512. 1	3, 953. 1
1954 _ _ _ _	3, 230. 0	-329. 6	2, 900. 4	2, 383. 7	3, 629. 5
1955 _ _ _ _	1, 252. 7	-478. 1	774. 6	3, 163. 2	2, 297. 2
1956 _ _ _ _	1, 022. 2	-11. 9	1, 010. 3	848. 7	2, 620. 1
1957 _ _ _ _	2, 017. 5	-9. 7	2, 007. 8	1, 664. 5	2, 356. 3
1958 _ _ _ _	1, 340. 0	-29. 0	1, 311. 0	1, 828. 3	2, 189. 8
1959 _ _ _ _	1, 515. 0	27. 8	1, 542. 8	1, 512. 2	2, 368. 1
1960 _ _ _ _	1, 300. 0	57. 2	1, 357. 2	1, 358. 4	1, 635. 4
1961 _ _ _ _	1, 800. 0	-6. 0	1, 794. 0	1, 786. 9	1, 466. 2
1962 _ _ _ _	1, 600. 0	-8. 5	1, 591. 5	1, 585. 4	1, 404. 6

¹ Includes "Common Use Item" appropriation administered by the Agency for International Development.

Table 42

MILITARY ASSISTANCE OBLIGATIONS AND EXPENDITURES

(In Millions of Dollars)

	Obligations/Reservations		Expenditures	
	FY 1962	FY 1950-62	FY 1962	FY 1950-62
TOTAL ¹ -----	1, 585. 4	30, 012. 5	1, 404. 6	27, 292. 1
BY BUDGET ACTIVITY				
Equipment and Supplies-----	1, 080. 7	23, 887. 2	928. 3	21, 758. 7
Shipping and Related Charges-----	90. 4	1, 505. 5	93. 9	1, 492. 8
Training-----	101. 3	839. 2	96. 0	777. 6
Infrastructure Construction-----	55. 2	882. 9	2. 8	694. 9
Other Military Construction-----	43. 3	387. 6	42. 9	318. 3
Weapons Production Program-----	78. 4	334. 7	93. 8	181. 8
Research and Development-----	5. 8	252. 6	28. 0	212. 1
Administration-----	24. 0	348. 0	21. 9	339. 8
Int'l Military Headquarters-----	10. 8	71. 8	8. 4	63. 7
Credit Financing-----	16. 6	212. 9	23. 0	186. 1
Other Services-----	78. 7	1, 290. 3	65. 5	1, 266. 4
BY AGENCY				
Army-----	669. 3	14, 782. 9	611. 1	13, 719. 4
Navy-----	169. 2	3, 492. 0	182. 5	3, 011. 8
Air Force-----	666. 3	9, 303. 4	561. 5	8, 369. 2
OSD-----	71. 8	1, 285. 4	39. 2	1, 052. 0
Other Agencies-----	8. 7	1, 148. 8	10. 4	1, 139. 7

¹ Includes "Common Use Item" appropriation administered by the Agency for International Development.

Table 43

MILITARY ASSISTANCE DELIVERIES

(In Thousands of Dollars)

	Fiscal year 1962	Fiscal years 1950-62
DELIVERIES UNDER GRANT AID ¹	1, 426, 767	26, 208, 435
EUROPE	411, 554	14, 596, 693
Belgium	18, 750	1, 182, 269
Denmark	15, 027	517, 212
France	33, 772	4, 136, 501
Germany	1, 475	900, 010
Italy	83, 700	2, 091, 556
Luxembourg	22	8, 223
Netherlands	12, 765	1, 134, 721
Norway	24, 856	676, 923
Portugal	4, 446	285, 144
Spain	20, 672	409, 649
United Kingdom	27, 496	1, 022, 432
Yugoslavia		693, 856
Europe—Area	168, 573	1, 538, 197
AFRICA	18, 047	67, 322
Cameroon	236	236
Dahomey	57	57
Ethiopia	10, 864	51, 432
Ghana	4	4
Ivory Coast	56	56
Liberia	434	839
Libya	1, 305	3, 948
Mali	721	787
Niger	54	54
Nigeria	4	4
Senegal	89	89
Upper Volta	58	58
Africa—Area	4, 165	9, 758
NEAR EAST AND SOUTH ASIA	264, 665	3, 913, 013
Afghanistan	632	1, 596
Greece	34, 885	969, 831
Iran	33, 257	485, 931
Iraq	32	46, 127
Jordan	2, 635	18, 099
Lebanon	204	8, 312
Turkey	156, 351	1, 821, 919
Near East & South Asia—Area	36, 669	561, 198

See footnotes at end of table, p. 413.

Table 43—Continued

MILITARY ASSISTANCE DELIVERIES

(In Thousands of Dollars)

	Fiscal year 1962	Fiscal years 1950-62
FAR EAST-----	596, 229	6, 586, 579
Cambodia-----	8, 660	73, 355
China, Republic of-----	84, 405	1, 875, 110
Indochina-----		709, 575
Japan-----	74, 014	737, 829
Korea-----	136, 899	1, 537, 145
Laos-----	37, 121	128, 537
Philippines-----	20, 527	244, 081
Thailand-----	39, 085	342, 431
Vietnam-----	143, 962	652, 805
Far East—Area-----	51, 556	285, 711
LATIN AMERICA-----	54, 503	337, 222
Argentina-----	1, 183	1, 793
Bolivia-----	2, 215	2, 973
Brazil-----	19, 347	140, 595
Chile-----	7, 913	43, 977
Colombia-----	5, 803	31, 100
Costa Rica-----	101	161
Cuba-----		10, 575
Dominican Republic-----	235	6, 343
Ecuador-----	2, 331	19, 517
El Salvador-----	599	760
Guatemala-----	1, 325	2, 652
Haiti-----	543	3, 007
Honduras-----	1, 500	2, 608
Mexico-----	333	391
Nicaragua-----	952	2, 879
Panama-----	291	376
Paraguay-----	191	356
Peru-----	4, 561	35, 930
Uruguay-----	3, 423	25, 404
Venezuela-----	532	571
Latin American—Area-----	1, 125	5, 254

Table 43—Continued

MILITARY ASSISTANCE DELIVERIES

(In Thousands of Dollars)

	Fiscal year 1962	Fiscal years 1950-62
NONREGIONAL	81, 769	707, 606
Administrative Expenses	21, 932	273, 690
MAP Disposal Account	9, 535	167, 522
MAP-Owned Property	² —22, 650	29, 437
Other Nonregional Services	72, 952	236, 957

¹ Includes only grant-aid deliveries chargeable to Military Assistance Program appropriations. Additional military materiel and services valued at \$21.3 million were delivered during fiscal year 1962 under the credit assistance provisions of the Foreign Assistance Act, for a total of \$184.9 million in credit assistance since 1955. Furthermore, military weapons, equipment, and supplies excess to U.S. needs and valued at acquisition costs of \$247.6 million were delivered to grant-aid countries during the year without charge to MAP appropriations except for rehabilitation and transportation costs, bringing total deliveries of excess stocks to \$2,280.4 million since 1950.

² Negative amount caused by distribution of nonregional program deliveries to country or area entries.

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